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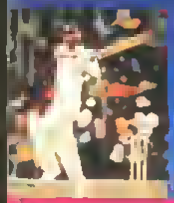
August 1985

Way of the Exploding Fist!



MATCH OF THE DAY
– sports games reviewed
WIN Graham Gooch's cricket bat from Audiogenic

COMPUTER GRAPHICS
– taking the 64 to its limits

HARDWARE REVIEW
– C.Itoh's Riteman C+

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CH1

Contents AUGUST

Editorial

WITH NEW men at the helm and new products coming into the shops, Commodore's fortunes seem to be improving. Attendances at the June show were barely down on last year, although many companies (such as Rabbit and Romik) are no longer with us, so the number of exhibitors was significantly fewer. More importantly, reaction to the C128 was good — at least from the point of view of journalists and the public. The Commodore engineers seem to have listened to critisms of the 64 and C16-Plus/4 and come up with a machine which neatly sidesteps the possible pitfalls of succeeding the 64 while offering many unexpected features too. At the same time, the future of the 64 seems to have been safeguarded by some interesting marketing ideas.

All that remains is for a final price for the 128 to be set. We would guess at £349, which makes the machine, monitor and disk drive a fairly expensive proposition. Commodore's greatest challenge — and one on which Bessey and Welch will have been putting in a lot of work — is the job of convincing the retailers that the system will sell to the public, who are reluctant to commit a large investment to a single computer system unless they are convinced of the quality of the machine and its back up service.

Next Month

64 Programming
Element from Rabbit West's book

Inside the C128
An exclusive photoreport

Plus
Utilities, games and contests

EDITOR Christopher Jenkins **PRODUCTION EDITOR** Barbara Hajek **EDITORIAL SECRETARY** Geraldine Smyth **GROUP ADVERTISEMENT MANAGER** David Lake **ADVERTISEMENT MANAGER** Simon Langston **MANAGING EDITOR** Brendon Gore **PUBLISHING DIRECTOR** Duncan Scott **TELEPHONE (ALL DEPTS)** 01 437 4343 **UK ADDRESS** Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP **US ADDRESS** Commodore Horizons, c/o Business Press Int'l, 205 East 42nd Street, New York, NY 10017 **SUBSCRIPTIONS** UK £10.00 for 12 issues, overseas surface (excluding US and Canada) £16.00 for 12 issues. US and Canada airlifted US$33.95 for 12 issues

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SUBMITTING ARTICLES *Commodore Horizons* invites readers' contributions, either program listings or articles. Articles should be typed, double spaced with a wide margin. When possible programs should be submitted on cassette or disk with a printout on plain white paper. Please keep a copy of your submission — do not send your only copy. Please enclose an s.a.e. if you wish your submission to be returned. All submissions must be your own original work.

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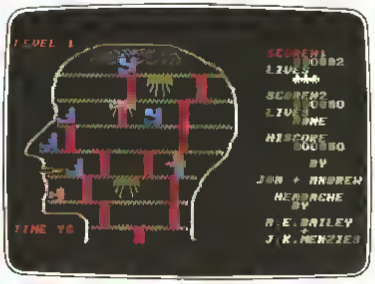
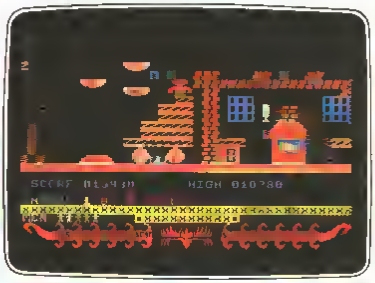


HEADACHE Arcade
Nervous Ned's quest to serve the Brain

CHICKIN CHASE Arcade
Ruling the roost can be a hard life



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038 **CHICKIN CHASE** Arcade
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041 **CIRCUS CIRCUS** Arcade
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ICPUG southeast

I should like to take the opportunity to introduce our user group, the South East Regional group of ICPUG. Our membership covers 64, Vic and PET users in London and the Home Counties. We meet at the Charles Darwin School, Biggin Hill, every Thursday, and produce a bi monthly newsletter.

If you would like more information about the group, I can be contacted on Prestel, Systel No. 068923505, or Compunet, ID DRP86.

David Petter
69 Charterhouse Road
Orpington
Kent

THANKS FOR the information, David — we're always pleased to hear from user groups with news of their activities

Name and address

SOME OF your more loyal readers may remember a program I submitted called "Address Book" published in the August 1984 edition, when Commodore Horizons had a different cover (and price, but who's complaining?). Anyway, I seem to have overlooked one aspect. When you have finished typing in the program, RUN it, entered all your addresses and saved them to tape, then want to load them back and add some more, you find that you can't because there's no CONTINUE option on the menu. I have written a routine to overcome this problem — just add these lines to the original program.

```
145 PRINT " [CD] 6) CONT
ADDRESSES
175 IFX$="6" THEN X=6
GOTO 200
180 X = VAL (X$) IF X <1
OR X> 6 THEN 160
200 ON X GOTO 210, 370
500, 560, 650 800
800 A = A + 1 GOTO 220
```

Chris Payne
St Albans
Herts

WE RE PLEASED to publish this correction to celebrate the anniversary of the original listing. Thanks Chris — don't make us wait another year to hear from you again!

The Vic in business

I ENJOYED reading the Business Special in your May issue, but, as usual, it is taken for granted that all the material is for the 64.

There must be thousands of people using Vic 20's, and a fair few with PETs. There is some good serious software for the Vic, although it is starting to shrivel from not seeing the sun much!

Viewriter is a very useful wordprocessor, Simplicalc is a good imitation of Visicalc, and there is also Vic Stock Control, Vicfile, Vicat, Vicalc and Vic Money Manager. I have not seen any of these mentioned in magazines. I have bought Commodore Horizons from the first issue — please don't forget us people who bought our computers before the 64 was born, and have no wish to put them in the dustbin.

John Alexander
Bognor Regis
Sussex

GOOD POINT, Mr Alexander — of course, we would like to support the Vic, but with a dearth of *new* products it's a difficult business.

If any Vic owners have articles they would like to write, programs to submit or software they think ought to be reviewed — write and let us know.

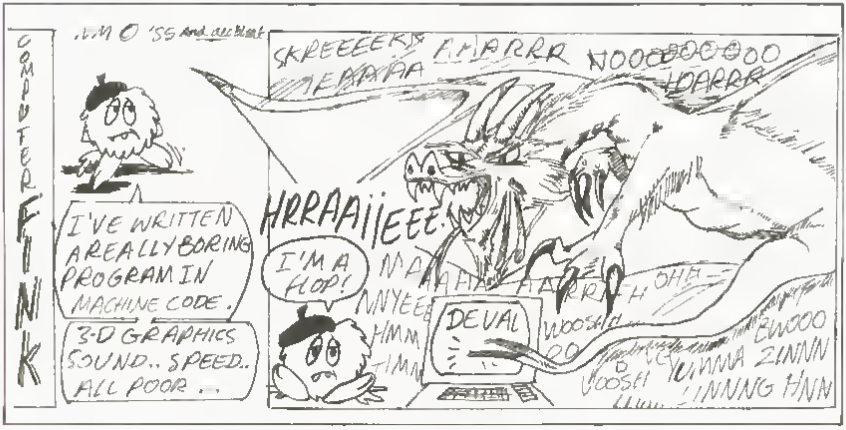
The Staff naff?

HAVING JUST completed Ultimates **Staff of Karnath**, I was appalled at the way the game ended. It took me about four months of stress, strain and agony, and all I got was a border flash and a small message displayed at the bottom of the screen saying "Congratulations — you have destroyed the Staff".

I don't think that this is a just reward for all the agony it has caused me. The other previous day I bought **Entombed**, but after completing Staff it isn't giving me much determination to try to complete it. If anyone wants to swap some information on Staff for some on Entombed, I will be more than happy to do so. Am I the first to complete Staff?

Derek Booth
16 Oak Avenue
Abram
Wigan

YOU'RE NOT the first, but neither are you the only reader to complain about the naff conclusion of Staff Come one, Ultimate — If you can write such brilliant programs, can't you figure out a satisfying end to them?



Show-stopping C128

WHILE THE 6th Commodore Computer Show was being declared open by Sandra Rhodes Bond girls the mechanical Nick Bessey and Paul Welch were holding the most vital assets at the pre-show press conference. The question on everyone's lips: the price of the forthcoming C128, was left unanswered as the Commodore duo announced plans to revitalize sales of the 64 through value added packages.

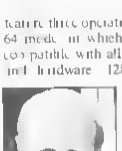
Paul Welch: value added packages to boost the 64

Interest from the public was certainly good — at 15,000 attendances were only to speculate on how many companies would still be around to support the 128 when it reaches the shops in August. Many names from last year's show had disappeared — Rabbit, Stack, Romik to name three — and major names such as Activision, US Gold, Ocean, Virgin and others declined to attend despite hotly denied rumours that the exhibitors were offering free stand space to big names.

commodore

The reality was that the show half the size of last year's with only one floor of the Hammersmith Novotel (the other was dominated by the previous — not launch — as stated in some of the show's pre-publicity — the C128 and related peripherals).

As promised, the C128 will feature three operational modes: 64 mode, in which it is 100% compatible with all 64 software and hardware; 128 mode, in



Nick Bessey: C128 price a closely guarded secret

which it operates in Basic 7.0 with a forty or eighty column display and CP/M mode, in which fully-fledged professional business software can be used. Current speculation is that the C128 will cost around £349 with the 1571 disk drive and 1902 monitor at around £300 each. The C128D, with built-in disk drive, will probably be released after the 128 at around £600.

To boost sales of the 64 and related peripherals, four 'value added' packages are to be released.

*The CBM 64 data recorder, joystick and International Soccer cartridge will sell for £199.

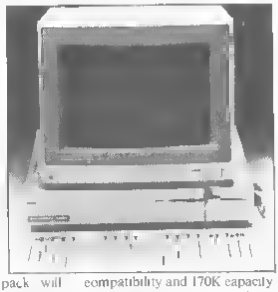
*The 1541 disk drive, Compunet modem (one year's subscription to Compunet), and Easyscript word processor will sell for £229.

*The 1541, MPS 801 printer and Easyscript word processor will sell for £349.

*The Plus/4, 1541, MPS-801 and Impex 3-2-1 software suite will sell for £449.

The C16 starter pack will continue to be sold and purchasers of this or the 64 starter pack will be eligible to claim a three night holiday for two at any one of a range of 300 hotels in Europe.

The various models of PC were also on show, together with new peripherals for the 64/128 including the 1561, a 3½ inch standard disk drive with 1541



compatibility and 170K capacity. The 1561 hasn't yet been allocated a release date — Commodore plans to wait and see whether the 3½ inch standard takes off before deciding on the 1561's future.

Licensed to thrill

THERE WAS plenty to see at the show, apart from sports games and music — Domark launched the Bond game **A View To A Kill** with the help of Desmond Llewellyn, alias 'Q' and starlets Nike Clarke and Maggie DeTrietas.

*Micro Classic showed **The Chess Game**, an arcade effort set on a chess board.

*Llamasoft demonstrated the many versions of **Psychedelia** and the popular 'hairy' games, though there was no sign of the promised **Batalyx**.

*Microdeal's **Land of Havoc**, a multi screen arcade adventure, is the latest 64 game from this company, also well known for C16 products.

*C. Itoh showed the C+ and other Commodore compatible printers.

*Computer Peripherals showed the **Print-Technik** video digitizer, which transfers video signals onto disk and prints out in colour or mono.

*Dean Electronics displayed the **Quick Data Drive** and the **Alphacom 80** thermal printer.

*Harboursoft showed **The Box** home robotics interface, and previewed the **Enhancer 2000** disk drive. This US import operates 10% faster than the 1541, is fully compatible and features solid construction based around a Chinon drive. The device number can be changed by removing a jumper and the drives can be daisy chained easily. The major advantage, as Harboursoft's Roger Jones pointed out, is that it isn't the size and shape of a breeze block — the Enhancer 2000 is around half the weight of a 1541. The product should retail here for around £199. Also going well on the Harboursoft stand was the revolutionary Hudsonsoft **Joy-Card**, a miniature joystick with two fire buttons but no handle — the eight position controller is set directly onto the base and is thus practically unbreakable.

*RAM Electronics showed the **Datex Monse**, an optical device for the 64/128 featuring impressive icon driven graphics software.

We'll be looking at many of the most impressive new products from the Commodore Show in this issue, with more to follow next month.

Commodores play music and sports

SOFTWARE at the Commodore [illegible] dominated by the [illegible] music and sports.

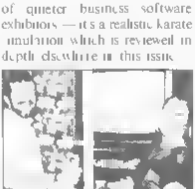
*Commodore's **International Tennis** a follow up to Soccer and Basketball was launched with the help of McEnroe lookalike impressionist Roger Kitter. The game which features perspective graphics and realistic sound effects sells for £5.95 on cassette.

*England Test bowler Graham Gooch was present to promote Audiogenic's **Test Cricket**. He signed autographs before dashing off to bat for Essex. The game sells for £9.95 on fast loading cassette and release is planned to coincide with the start of the first Test.

*Anirog previewed the forthcoming soccer game **Five a Side**.

A follow up to the highly praised hockey game **Slap Shot** once completed Five a Side will feature software speech and for the first time songs. It's also the first soccer game which allows you to take penalties.

*Melbourne House's **Way of the Exploding Fist** was making lots of noise to the consternation of quieter business software exhibitors — it's a realistic karate simulation which is reviewed in depth elsewhere in this issue.

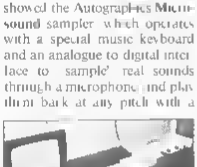


*Alligata showed off boxing game **Knockout** and **Jack Charlton's Match Fishing**.

*Bubble Bus showed the C16 conversion of the pool game **Hustler** as well as Vic C16 and 64 titles including **Cave Fighter** and **Aqua Racer**.

On the music front the show resounded to the sounds of SID chips synths and sound samples as several exhibitors battled for the ears of the public.

*Harborsoft Distribution showed the Autographics **Microsound** sampler which operates with a special music keyboard and an analogue to digital interface to 'sample' real sounds through a microphone and play them back at any pitch with a



wide range of editing options.

*Supersoft demonstrated the **Microvox** digital sampler which features sound sampling and editing facilities with the added bonus of a MIDI interface for under £200 and the music program **Music Master**.

*Jorethsa **Music Composer System** linked easily to the Supersoft device along with a number of Casio and Roland MIDI-equipped musical instruments for a spectacular rendering of a Bach piece. The Music Composer System reviewed in our June issue, is a hardware and software system for controlling MIDI synths from the 64, featuring accurate musical notation and print out facilities.

*Anirog's **Voice Master** is primarily a speech sampling and reproducing device, but in its Voice Harp mode it can be used to compose and play 64 music by humming or whistling into the built in microphone.

*Island Logic's **Music System** was on show too — exclusively previewed in our June issue. The Music System is a synthesis composition and MIDI control package for the 64 using unique Macintosh like control icons.

*Commodore itself showed off the new packages from Music Sales, including the **Music Maker** keyboard overlay the **Playalong** albums (reviewed last month) the **Sound Studio** synthesis and composition package which comes complete with a booklet written by synthesist Dave Crombie, and the **Sampler** which when released will sell for around £69.99 and include echo and harmoniser routines as well as sampling and MIDI compatibility.

Amiga news

releasing no specific technical details. Commodore UK general manager Nick Bessey said he was prepared to lay a lot of money on the Amiga machine being available in the UK in January. Speaking at the pre show press conference at the 6th Commodore Computer Show Bessey would not speculate on the price of the machine. However following the Chicago Consumer Electronics Show some details of the specifications have emerged.

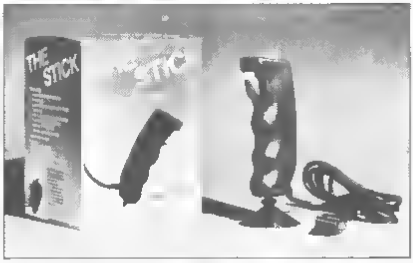
The Amiga will be a 68000-based machine with 256K RAM expandable to 512K. The 192K ROM includes a WIMP — window icons, mouse operating system — called Intuition. There's also a unique disk operating system, Amiga-DOS. The machine includes a built in monitor and single disk drive.

The Amiga will be notable mainly for its graphics and sound. Three special chips Agnus, Daphne and Portia handle graphics animation and sound production. The display offers 60 or 80 column hardware sprites, 4096 colours and 32K screen memory with resolution up to 640x400 pixels. The sound chip gives four sound channels over nine octaves.

The disk drive operates with 3½ inch disks with 880K formatted capacity. The Amiga also has a detachable keyboard two button mouse, joystick ports, RS 232 and Centronics interfaces, RGB, TV and stereo audio outputs and RAM expansion socket.

A range of printers, floppy disk units, a hard disk unit storing up to 8Mb, a video controller and 'frame grabber', and a MIDI music interface are also in the planning stages.

Aimed at a broad spectrum of users in the home, business and creative areas, the Amiga will be a significant launch for Commodore worldwide. The most important factor will undoubtedly be the price and at a reported dollar price of 1995 the Amiga may well make it to the UK at around the £1500 mark.



THE STICK from Lightwave [illegible] with a 9 pin D connector. Operating [illegible] port from Germany and is guaranteed [illegible] on 051-639 5050

Faster 1541

USERS OF the snail paced 1541 disk drive will be pleased to hear of Evesham Micros new Quick disc + cartridge. Requiring no internal modifications or additional software to operate, the cartridge speeds up load and save by a factor of four or five, allows disks to be formatted in ten seconds, allows unprotected disks to be backed up in 3½ minutes, and adds DOS commands such as $(RETURN) which loads and displays a directory and SHIFT RUN/STOP which executes the equivalent of LOAD "0:*",8,1.

Centronics user port software which will print the CBM graphics set and a reset switch are included in the cartridge.

All this for only £19.95. For more details talk to Evesham on 0386 49641.

Scotch disky

MAGNETIC MEDIA giant 3M UK has announced a new range of computer products under the Scotch label. Already well known for video and audio tape, Scotch has now come up with a new global product range intended to promote brand awareness.

Aside from a new selection of video and audio tapes Scotch will be producing computer cassettes and floppy disks backing them with a major marketing campaign. The products include 5¼ inch floppy disks available in single or double density, single or doubled sided packs of two, five and ten a 3½ inch head cleaner and 3½ inch diskettes sold in packs of two and five single or double sided. These disks would be compatible with the Commodore 1561 disk drive seen at the Commodore Show.

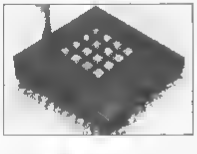
Scotch computer cassettes, in three lengths C10, C15 and C20 complete the range. The diskettes are covered by a lifetime guarantee, and the whole range should be in the shops by September.

Contact 3M UK PLC, 3M House, PO Box 1, Bracknell, Berks. 0344-426726.

Datapad redesigned

VOLTMACE'S Datapad has gone through a redesign which aims to make it more commercial. The unit's plastic case has been replaced with a low profile metal case with non-slip feet and new moulded keycaps have been fitted.

The 16-way programmable keypad plugs into the 64's joystick port and comes complete with software on cassette which enables the user to program the alphanumeric value of the keys. The redefined keys are shift lower case characters so they operate as soon as the shift lock key is switched on.



The Datapad retails at £34.95. Contact Voltmace, Park Drive, Baldock, Herts. 0462 894410.

It's for yoo-hoo!

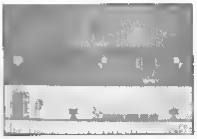
A COMMUNICATIONS system for 64 owners using the OEL/Prism comms pack is now available from British Telecom Dialsoft, a service of BT East, offers a range of facilities including auto chat mode, data and program transfer and built in machine code SAVE routine. The current versions for the 64, Spectrum and BBC micros all use the same line protocols enabling owners of the various machines to exchange data. Future plans for the service include the development of a simple wordprocessor which will allow messages to be transferred via electronic mail.

The Dialsoft software can be downloaded via the phone lines. For more details phone Colchester (0206) 806[illegible].

Rupert's come-back

BY THE END of July Rupert Bear fans everywhere will be able to play the game **Rupert and the Toymaker's Party** on the 64. Priced at £7.99 the Argus Software game is described as "challenging, addictive and jolly good fun — it meets all the exacting standards laid down by the Daily Express".

The arcade adventure shows Rupert making his way through the eight levels of the castle following the trail to the party left by his friends. Toys both helpful and hindersome, magic aeroplanes and troublesome bees are encountered along the way.



The game is being released to coincide with Rupert's 65th birthday celebrations — though the little devil doesn't look a day over 60.

Contact Argus Software, Liberty House, 222 Regent Street, London W1. 01 439 0666.

FULL DETAILS on the October Commodore Horizons Show are now available. The Show, on the 26th and 27th October (Saturday and Sunday) at the Hammersmith Novotel, London, will feature stands from the best known software houses, competitions, celebrities, user information, discount offers and more. For information on low stand prices and booking arrangements, contact Computer Marketplace on 01 930 1612.

Danish goodies

A NEW RANGE of computer accessories from Denmark is about to hit the UK. The AM range is to be marketed by Nu-Way Style Components Ltd, and is to be available through computer specialists.

The range includes keyboard cleaners, diskette head cleaners, protective disk mailing boxes, computer cassettes and a joystick. For details contact The Publicity Department on 021-454 5955.

Here's Max

THIS IS Max, hero of the forthcoming educational program **Romper Room** from Beyond. Romper Room is being advertised as the first pre-school software, which, with the help of a supervising parent, presents the alphabet and simple words in an entertaining way. Romper Room costs £9.95 on cassette for the CBM 64.

Dennison cleans up

THE PERFECT solution to a grubby computer — Dennison Manufacturing has announced the CK1 cleaning kit. The kit includes three special cleaning solutions — a screen cleaner, general surface cleaner and anti static spray — and comes with spray pumps and a supply of fifty lint free cleaning cloths. The solutions are also available in separate kits, as part of the Elephant range of computer supplies. Dennison claims that by regular cleaning, heat build-up, deteriorating print quality, short circuits caused by dust and static discharges leading to data loss can all be avoided. Contact Dennison at Colonial Way, Watford, Herts. 0923 41244.

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Already tested by the intrepid explorers of the Commodore press, here – breathlessly – are just a few words from their advance battle reports.

"The Final Frontier?"
(Mega Game, Your 64, June 1985).

"**My favourite** . as absorbing and challenging as the original."
(Commodore Horizons, June 1985).

"To explain every element of Elite would take a book... **you'll run out of energy** long before Elite runs out of things to show you."
(Commodore Computing International, June 1985).

"A brilliant game of blasting and trading... truly a mega-game... **the game of a lifetime.**"
(Gold Medal Award, Zzap! 64, May 1985)

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Charts

Top Twenty CBM 64 Games

1	Dambusters	Sydney/US Gold	£9 95
2	Softaid	Softaid	£4 99
3	Pitstop 2	CBS/Epyx	£9 95
4	Herbert s Dummy Run	Mikro Gen	£9 95
5	Shadowfire	Beyond	£9 95
6	International Basketball	Commodore	£5 99
7	Theatre Europe	PSS	£9 95
8	Impossible Mission	CBS/Epyx	£7 95
9	Spitfire 40	Mirrorsoft	£9 95
10	Grog s Revenge	US Gold	£9 95
11	Strangeloop	Virgin	£8 95
12	Bounty Bob Strikes Back	Big 5/US Gold	£9 95
13	On Court Tennis	Activision	£10 99
14	Cauldron	Palace	£7 95
15	Entombed	Ultimate	£9 95
16	Jonah Barrington s Squash	New Generation	£7 95
17	Talledega	Cosmi/Audiogenic	£6 95
18	Rock Horror Show	CRL	£8 95
19	On Field Football	Activision	£10 99
20	Blagger goes to Hollywood	Alligata	£9 95

Bubblers

1	Brian Jacks Superstar	Martech	£7 95
2	Jump Jet	Anirog	£9 95
3	Kickstart	Mastertronic	£1 99
4	Jet Set Willy 2	Software Projects	£9 95
5	Murder by the Dozen	CBS	£17 95 disc

Top Ten CBM 64 'Non-games'

1	Mini Office	Database £5 95	Business
2	O level (series)	Commodore £4 99	Educational
3	Simon s Basic	Commodore £50 00	Language
4	1st Steps Mr Men	Mirrosoft 8.95	Educational
5	White Lightning	Oasis £14 95	Utility
6	Mr T (series)	Esury £8 95	Educational
7	Pan O level (series)	Hill McGilleon £14 95	Educational
8	Forth	Romik £14 95	Utility
9	Machine Code Tutor	New Generation £14.95	Utility
10	Go Sprite	Mirrorsoft £9 95	Utility

Bubblers

1	Entrepreneur	Collinsoft £19 95	Business
2	Music Studio	Activision £14 95	Utility
3	Games Creator	Mirrosoft £12 95	Utility

Top Five C16 Games

1	Gremlins	Adventure International	£9 95
2	BMX Racers	Mastertronic	£1 99
3	Blagger	Alligata	£6 95
4	Zargon Wars	Gremlin	£6 95
5	Flight Path 737	Anirog	£8 95

Bubblers

1	Vegas Jackpot	Mastertronic	£1 99
2	Wizard & the Princess	Melbourne	£5 95
3	Classic Adventure	Melbourne	£5 95

Top Five Vic 20 Games

1	Rockman	Mastertronic	£1 99
2	R I P	Mastertronic	£1 99
3	Flight Path 737	Anirog	£6 95
4	Hunchback	Ocean	£6 90
5	Doodlebug	Mastertronic	£1 99

Bubblers

1	Mickey the Bricky	Firebird	£2 50
2	Phantom Attack	Mastertronic	£1 99
3	Psycho Shopper	Mastertronic	£1 99

Our recent readers' survey indicated that most of you wanted to see a games chart — but we've gone one better than that. RAM/C's charts, compiled from 300 independent retailers, are the most accurate and unbiased available, and cover CBM 64 games, non-games 64 software, and the top five C16 and Vic 20 games, plus those titles "bubbling under" the charts.

Compiled by RAM/C from a panel of specialist dealers
Sales period 4 weeks prior to June 12th 1985

A jump to the left...

An odd choice of subject for a computer game, you might think — bisexual transvestites from outer space. Fans of the Rocky Horror Picture Show, recently re shown on the box, would think differently

Fanhful to the film, CRL's stylish effort allows you to play either hero Brad or herome Janet in their encounter with Frank N Furter, Riff Raff and the other refugees from the Transylvanian galaxy In your journey around the ghastly mansion, you will lose your clothes, be incinerated by anti matter lasers and subjects to all sorts of indignities What you're trying to achieve is left fashionably vague; somewhere in the house are the dismantled parts of the Medusa machine which you need to unthaw your beloved, but it's left to you to work out which characters are hostile, how to assemble the bits, and so on

The graphics are fair, though the sprites aren't that detailed — perhaps a good point in view of the fact that you spend most of your time naked The music is excellent, and the characters come out with the odd snatch of song lyric in speech bubbles

Whether "Let's do the Time-Warp again" adds anything to the meaning of the game remains to be seen

Overall, an interesting effort, but an odd subject to choose (since the film isn't that popular with younger deviants) and a fairly run-of-the-mill game style in itself, saved only by a zany sense of humour and a few decent graphics Whether the kiddies will develop an unhealthy interest in transvestism remains to be seen.

Program: Rocky Horror Show, 64
Suppliers. CRL
Price £8 95
Graphics: ★★★★★
Sonics. ★★★★★
Gameplay ★★★★★

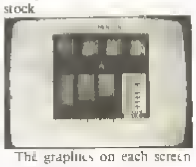
Planet building

A great concept with a disappointing execution, MULE is a planetary development simulation in which up to four players can take part

The Multiple User Labour Element is a mobile robot worker which is a vital part of your development plans.

After selecting a character type, each player is given a certain amount of money and goods with which to trade and build up a settlement Players select a plot of land from a map, and the lie of the land suggests the kind of industry each should develop mining, farming, and so on

Each player visits the central township to trade and equip his settlement. While there you can also gamble and auction your stock



The graphics on each screen are unspectacular, and the action can be rather slow However, the game itself can be good fun, probably best played with at least two players It's in this situation that the subtleties of trading and the effect of random events such as earthquakes and robberies, become most interesting

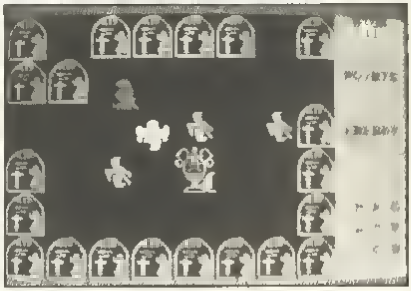
Program MULE, 64
Supplier Ariolasoft
Price Tape £9 95 disk £11 95
Graphics: ★★★★★
Sonics ★★★★★★
Gameplay ★★★★★★

Picture postcards

Clearly designed to look as much as possible like an Ultimate game, with the same style of packaging and the same sort of instruction sheet, Lands of Havoc also captures some of the playing points of titles such as **Sabre Wulf**

There's one excellent gimmick which gives it a breath of originality The package comes with nine postcard sized maps, and each time you play the program tells you in advance how to lay them out Since the patterns are generated randomly, this leads to the game being slightly different every time

Unfortunately, the graphics on the screen aren't as beautifully detailed as those on the cards



The hero in the form of a reptilian humanoid, scuttles around the maze in search of magical objects which will help him to defeat the evil tyrants who have conquered the land To gain extra magical power you have to open a wizard's chest but to do that you have to find a book of sorcery This is guarded by all sorts of vampires zombies, harpies, wolves, and so on., you get the idea.

The sprites are single colour, which isn't very ambitious, though the animation and special effects are reasonable. Once you've got through a certain number of stages, you can progress into new areas which are unmapped and totally mysterious. You'll need a lot of patience to get that far, though Lands of Havoc is a competent but uninspired program, which follows the same sort of line of reasoning as many others, "lots of screens, lots of pseudo-mythical background, vague instructions and a pretty box." That isn't to say that the game isn't perfectly playable — it just doesn't stand out from the crowd

Program Lands of Havoc, 64
Supplier Microdeal
Price £6 95
Graphics. ★★★★★
Sonics. ★★★★★
Gameplay ★★★★★

Sparkling epic

Another cheapie that's more fun to play than most £10.99 US imports, Taskmaster is a seven scene zapper with a touch of magic.

Playing a heroic prince, you

must complete seven tasks in order to win the hand of a beautiful princess

The graphics are nicely designed and animated — quite similar to those in International Soccer and the like, except in this case the characters are zombies, barbarians, and vampires perhaps not that much different

Certainly the best of the offerings from Creative Sparks' budget Sparklers label Taskmaster also features nice sound effects and an excellent intro screen Excellent fun for budding heroes everywhere, and a recommended purchase for sheer entertainment value

Program Taskmaster, 64
Supplier Creative Sparks
Price £2 50
Graphics: ★★★★★
Sonics: ★★★★★
Gameplay ★★★★★★

Kerboom!

This is a development of the old sliding block puzzle, in which a series of squares have to be rearranged in a frame to spell out a message or complete a picture. Incentive's twist is to add an arcade element to the game, so that the patterns you are required to form are constantly changing

The game is set in a bomb factory and your job is to go through all 64 levels destroying all the bombs Each sliding square is a pallet covered in

fusewire paths and your aim is to rearrange them so that the spark on the fusewire is able to reach the bombs on the edge of the screen and detonate them

The movement of the spark can be speeded up by pressing the space bar or fire button, and as you progress through the levels the layouts become more complicated and the bombs greater in number There's also a time limit, and penalties for running into dead ends. At later levels you're threatened by water droplets from an extinguisher system which will put out your spark The completed version of the game will apparently feature music on the reverse of the tape, though I doubt whether it's the "Confusion" made famous by those zany mop heads New Order

Good marks for originality and addictiveness

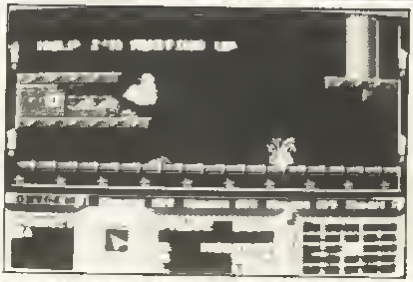
Program: Confuzion, 64
Supplier: Incentive
Price: £6 95
Graphics: ★★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★

Swarf squad

The multi-screen arcade adventure is a format which is beginning to look increasingly tired, especially for those who don't have the patience to spend hours trying repeatedly to find missing objects or get through locked doors.

Strangeloop doesn't avoid these drawbacks altogether, but it does have several elements which set it above the run-of-the-mill.

There are around 250 chambers, representing a robot factory which has gone out of control Your little spacesuited man flies around, using travel



tubes and airlocks to get from one chamber to another A 5x5 map gives your current position, and a compass shows the way to the central control room

Hazards include flying swarf and loopy robots Patches from your supplies can repair tears in your suit but both these and your oxygen tanks will have to be replenished along the way Your laser gun also has a limited amount of ammunition.

The game only really takes off, literally as well as metaphorically, when you find the hidden jetbike which makes it easier to get around.

The graphics aren't as awesome as all that, since they tend to become dulled by repetition, but there's a useful game save facility Overall, great for players who demand plenty to occupy their time and trigger fingers

Program: Strangeloop, 64
Supplier: Virgin
Price: £8 95
Graphics: ★★★★★★
Sonics: ★★★★
Gameplay: ★★★★★

Batty biker

How do they do it exactly? Mastertronic's latest effort is not only magnificent for £1 99, it wouldn't be bad at £7 95 Based on the KP Skips cartoon character Clumsy Colin, Action Biker is an absolute gem

Mastertronic and KP have put a lot of effort into promoting this game, and it reflects very well on both companies. Clumsy Colin is a motorcyclist who must complete a series of tasks at the highest speed possible. The detailed 3-D scrolling landscape is seen through a window, and the panel at the bottom of the screen gives your speed and gear setting.

You're not told what tasks you have to accomplish, though scattered around the screen are lamps, overhead courses, obstacles, petrol station, and so on The aim seems to be to get around all these in the shortest possible time, by building up a good speed and mastering each trick in turn Hidden objects can help you to overcome the problems posed by the lake, fair ground and building site. Somewhere there's also a turbocharger

which will allow you to speed up your bike.

The whole feel of the game is excellent, and it's so well designed that it gives a feeling of space and detail without necessarily being very complex or difficult to start playing. Ace music too.

Excellent — and, oddly enough, streets ahead of the Spectrum version which seems to be a different game altogether and much inferior

Program: Action Biker, 64
Supplier: Mastertronic
Price: £1 99
Graphics: ★★★★★★★
Sonics: ★★★★★★
Gameplay: ★★★★★★★

Tut, tut

Another Mastertronic effort this time for the Vic 20. Fair considering the limitations of the unexpanded machine. Your task is to guide Archie, an intrepid explorer through the corridors of an Egyptian tomb in search of the sacred golden death mask The tomb is heavily protected with poisonous snakes scorpions and the fast moving sludgy Guardians

You have a lamp but it has a limited life, and once it goes out so have you It's great fun trying to navigate around the maze with only a few squares around you visible, but inevitably you'll be squelched by a Guardian sooner or later If you can find the mask and take it to the exit you'll be able to escape. Slowing you down will be the temptation to amass extra points by stopping on the way to collect gold However, one fall along the way and you'll never leave the tomb

It's interesting to compare this with something like Entombed on the 64, which has a similar plot though it's an infinitely more sophisticated program King Tut is fast and colourful, and makes the most of the Vic's abilities, and is another argument against those who claim that budget software must inevitably be poor quality

Program: King Tut Vic 20
Supplier: Mastertronic
Price: £1·99
Graphics: ★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★

Scramble, egg

This is a 27 screen arcade effort which is probably the best thing of its kind seen so far on the C16. This, of course, isn't saying a great deal since there's not a great deal of competition. Still it's all perfectly good fun, as you playing the accursed Prince Harry attempt to get through the Dark Tower. Things aren't made easier by the fact that you have been turned into

a boiled egg shaped mutant by the evil Guardian of the tower.

So your little eggy has to collect all the magic jewels hidden around the tower, in order to regain his rightful form. It's all pretty routine stuff, with ladders to climb, platforms to leap onto, and various googlies to avoid. The animation is very smooth but the screen design is a little minimal.

At the end of each game, you have the option of restarting completely, or starting from the last room of the previous game (though you will still lose all your jewels.

The game becomes progressively more difficult as you get further into it, so it should bring some satisfaction into the lives of C16 owners in search of a challenge. Hardly the most exciting prog on the market, however.

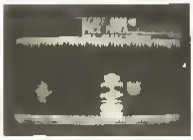
Program: Dark Tower, C16
Supplier: Melbourne House
Price: Tape £6.95
Graphics: ★★★★
Sonics: ★★★★
Gameplay: ★★★★★

Plantlife

Petals of Doom is one of the zappiest games yet for the C16, a combination of Defender and Gardeners' Question Time.

There isn't much logic to the game, but who cares. You are a spaceman... armed with the obligatory jetpack and laser gun, trapped in a series of underground caverns. Each cavern is bounded by a force field, and your only hope of escape is to help the alien plants reach their full growth, at which time the forcefield collapses (don't ask me why). Of course, there are all sorts of fast moving baddies out to stomp on the flowers and blight your chances of escape.

The graphics are excellent, bearing in mind the limits of the C16, and the sound effects good too. Both joystick and keyboard control are fast and positive. You'll lose a life if overuse of your laser and jetpack, or repeated collision with aliens, depletes your power supply the



status of which is given by a bar graph.

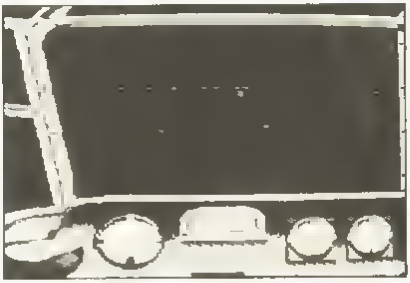
A good, fast shoot'em up, worthy of inclusion in any C16 owner's software library. Gremlin's forthcoming 64 game **Thing on A Spring** should also be worth looking out for if it maintains this high quality.

Program: Petals of Doom, C16
Supplier: Gremlin Graphics
Price: £7.95
Graphics: ★★★★★★
Sonics: ★★★★★★
Gameplay: ★★★★★★

Bouncing bombs

This may well be US Gold's biggest game yet. They certainly seem to think so themselves since the amount of publicity put into this title by far outstrips any other game.

Based on the famous Dambusters mission, US Gold's title is a combined arcade game, strategy and simulation. You have to play many roles as you pilot your Lancaster bomber towards its destiny; navigator responsible for checking the map screen and plotting a course which will best avoid enemy installations, front and rear gunners, warding off attacks



from enemy fighters and bursting barrage balloons, engineers, supervising the bomb mechanism and plane systems, bomb aimer, pilot and so on.

The enemy fighters and barrage balloons are not particularly detailed though they do disappear in a satisfying explosion once you've brought your guns to bear on them. The great thing about Dambusters though, is that it isn't just a shoot-em up, and a such should have a great deal more appeal than many of the American imports which are fast and colourful, but don't have any real depth.

The manual contains plenty of historical details and strategic advice which adds to the atmosphere of the game, and there are several options related to difficulty levels and so on.

Dambusters should sell very well and deservedly so.

Program: Dambusters, 64
Supplier: US Gold
Price: £9.95
Graphics ★★★★★★★
Sonics ★★★★★
Gameplay ★★★★★★★★

Checkmate

Badly named since its title suggests it to be a straightforward chess simulation rather than a very original arcade game, The Chess Game is the first independent effort from Micro Classic, and deserves to do well.

The brilliantly designed opening screen shows you innocently asleep, surrounded by ornaments and with your chess board by your side. Press the fire button though and you're hurled into a nightmare, where you have become a pawn on a gigantic chessboard and you are surrounded by hostile horrors

both on and off the board.

The perspective animation and the sprite designs are excellent though I would have appreciated more detailed instructions. Your little man, complete with night cap, has to make his way across the chessboard to score points. Hostile chess pieces, and missiles thrown from the audience, bar the way.

You can freeze the action if you get into trouble, though this will cost you a points penalty. You'll get a bonus if you can traverse the entire board without losing a life.

It's a pity that such a great-looking game comes without more explicit instructions. Some players may have the patience to work out the significance of the differently coloured board squares, the bonus for 'queening' and so on, but it's not something which is immediately obvious. This is a pity, because together with the title of the game it could put many people off what is a very clever and original program.

Program: The Chess Game, 64
Supplier: Micro Classic
Price: £7.95
Graphics: ★★★★★★★
Sonics: ★★★★★
Gameplay: ★★★★★★★

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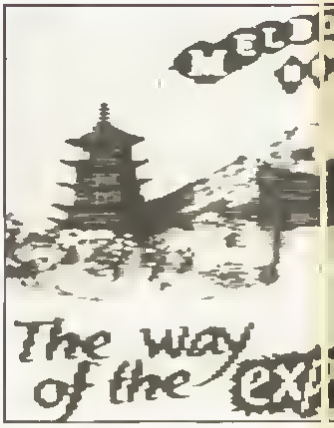
AS SOMEONE who's always been more interested in pork chops than karate chops I eyed this new Melbourne House title warily but as a disinterested player it didn't take me long to come to the conclusion that *The Way of the Exploding Fist* is right up there among my Top Five Commodore games. The graphics can truly claim to be cartoon like — though maybe even that is a little unfair and we should be almost calling them life like.

Because the graphics are so good it means you can enjoy playing the game straight away without too much about the controls — just sit back and watch yourself keep hitting the deck with great regularity and an almost painful thump. If you're anything like me you probably will want to play immediately when faced with the lengthy instructions, though you'll have to go back to them eventually or you'll just continue to eat mouthfuls of that oriental earth.

There are one- and two player modes, with keyboard and joystick options, though if playing on keyboard only you will have to be pretty nimble with the digits. I'd like to have seen an option to choose your own keys, but it is quite possible to play well on the keyboard and most people will be able to go for the joystick option anyway.

For this you need a good eight-directional joystick, with each of those eight directions covering 16 possible movements according to whether the fire button is pressed at the time or not. For example, if you press the joystick up then you leap in the air, but if you have the fire-button pressed then you execute instead a flying kick to your opponent's head — provided it's still there by the time you arrive, although all the movements are carried out very quickly, as you'll discover when playing against the computer.

One difficult to-define feature that a game like this must have is playability, the feeling that you're getting to grips with it and making progress, even if only slowly. That does apply to *The Way of the Exploding Fist*, as you begin your first encounter on novice level and hope to progress upwards through the various dans. You have thirty seconds in each bout, and instead of two falls, two submissions or a knockout, the winner is the first to reach two full points, which are indicated by yin/yang symbols at the top of the screen. Obviously you have to bring your opponent



THE WAY OF THE EXPLODIN

In search of universal harmony and one-ness with the cosmic all, ***Mike Gerrard*** *sets out to learn the secrets of karate from Melbourne House. What is the sound of one hand clapping, anyway?*

● *In close combat use fists rather than feet*

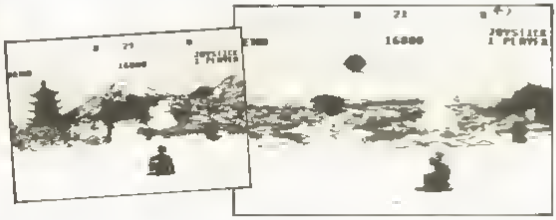
to the ground, but whether you gain a full point or half point for this depends on the move and how well it is executed.

The movements available range from low kicks and punches to flying kicks and high punches, and it's also possible to block, do backward sweeps, back kicks, and a roundhouse (about-face) manoeuvre, though this is tricky to master and invariably left me facing the wrong way, vulnerable to a kick in the rear from my unscrupulous opponent.

Perhaps the most spectacular movements are the backwards and forwards somersaults, very useful for getting out of tight corners. Also awkard to get used to is the fact that if you do an about-face and are then looking left instead of right, all your joystick movements do an about-face too. This is confusing, though not half as confusing as I imagine it would be if they didn't change round.

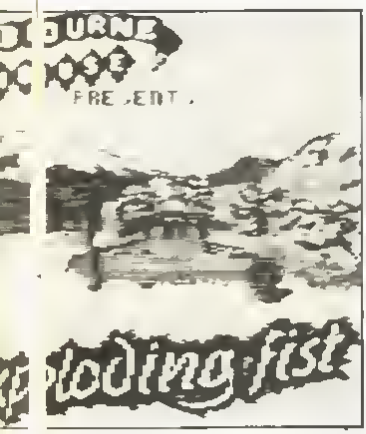
Playing against the novice is reasonably straight-forward, as he only tends to execute one move at a time, rather than quick combinations that come up later. I found the easiest way to floor him was to move right in and give a short jab kick to the ankle, sending him stumbling backwards. Either that or a kick to the midriff, neither of these being very elegant, and both only worth a half point, but effective nevertheless.

● *A quick kick to the shins — low scoring, but a killer move*



● *The pagoda — your quest for perfection starts here*

● *The seafront — a skilful somersault gets you out of trouble*



G FIST

1st Dan opponents react more quickly, and come in with one-twos and occasional counter moves but after a cautious start I found that a very quick kick to the chest was the way to get up to 2nd Dan level. At 4th Dan level a rampaging bull enters the scene — though I won't give away the secret behind surviving its charge!

Each level's encounter takes place against a different background, and very elegant they look in mainly pastel colours. The 200-plus sprites are brilliantly designed and animated and there's a perfectly convincing 3-D look about the screen as the men move in front of and behind each other, with punches and kicks connecting very believably. The sound and brilliant music adds to the realism in most cases, with pre-punch grunts and thwacks as you hit the ground, although some of the effects have all the attraction of sandpaper scraping down a blackboard. I tended to play the game with them off rather than on.

But play the game I did, again and again, and I'll be carrying on until I come face to face with that bull. I might not be able to make pork chops of him but he'll be mince meat by the time I've finished. ■

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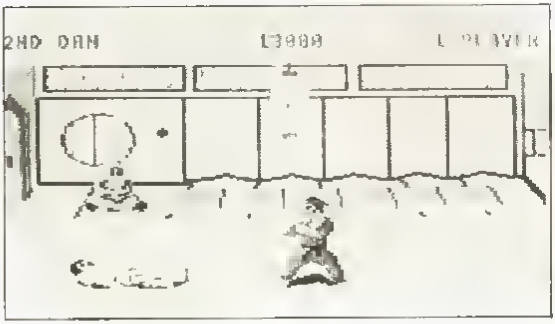


● *The price of imperfection — a fighter lies stunned*

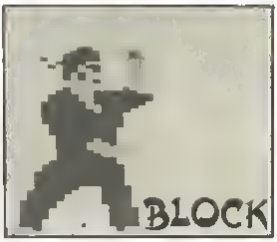
● *The temple — here you will meet the enraged bull*

● *The fighting house — beware of back kicks*

● *Make a mistake and you'll suffer the consequences*

● *The low punch can be a powerful surprise move*

● *A low sweep allows you to topple an unprepared adversary*



● *Ward off your opponent's punches if you're fast enough*

Nick's exploring Virgin territory

*It's one of the brightest and most imaginative software houses around, and Mick Alexander has big plans for its future. **Chris Jenkins** talks to Virgin Software's MD*

NICK ALEXANDER would be the first to agree that Virgin Software entered the market with some dodgy products, and took some time to mature into the quality software house it has become today.

'People have now stopped buying products that isn't any good — part of the benefit of the industry becoming more professional is that the sharks who moved into it just to make a quick profit haven't survived.'

Virgin Software is part of Richard Branson's music-based empire, and like the other wings of the company has suffered its up and downs. Nick Alexander, though, feels that like the famous transatlantic airline project, which is one the verge of buying its second Jumbo Jet after an uncertain start, Virgin Software can see the light at the end of the tunnel.

Part of the problem has been communicating with a market where the phrase seems to be 'contraction'.

"The situation now is that we don't go to many computer shows, because the software market is no longer composed solely of enthusiasts who are willing to travel to buy

them software. We found at one show last year that we did more business by not going because we were on hand to do business with distributors while our competitors were tied up at the show. Also, with less money about for advertising and a decline in the specialist computer press, we're having to look at mass-market media for publicity. This is of course expensive, and I think the software industry is about eighteen months away from being able to afford it properly."

GOSH!

So with a contracting market and less publicity, how can games houses like Virgin survive? 'The situation is still quite good, with around 150 companies operating, but I expect only around fifty will survive. Those that do remain will be stronger. There's a sort of parallel with the record industry: thee indie labels never made much money, and most ending up closing or selling out to bigger companies. You can't take the parallel too far because with games software all you need is a computer and some programming skill, not thousands of pounds worth of recording equipment. Our in-house team uses BBC machines and disk drives for development work, then transports the code to the different machines. So the kinds of costs you're looking at don't compare with the music business. Talented programmers can get by without enormous companies behind them.

The companies that will survive are those who maintain a high level of creativity. **Falcon Patrol**, written by Steven Lee, was our first major success, and saw us through a fairly lean period afterwards. We're also doing well with **Sorcery**, because the 64 version has been boosted by the success of the Amstrad conversion. **Strangeloop** and **Ghettoblaster** are the latest products. I like Strangeloop, though it's a little inaccessible since it takes so long to get into. Ghettoblaster by Tony Gibson (ex Taskset) has also been well received."

Nick's work with the Guild of Software Houses (GOSH) helped to ease the transition

of the software market from cottage industry to big business.

'Virgin was one of the eight founders of GOSH, which was a spinoff of the Computer Trade Association. It was very valuable in bringing software houses together, raising awareness of the problems of piracy through the Federation Against Software Theft, and dealing with boring problems like standards for bar coding and co-ordinating release dates. We've almost got a Bill through parliament setting sensible penalties for commercial piracy, and GOSH is also going to look at things like establishing overseas networks. I'm no longer on the executive, but I do attend the meetings — GOSH is a very useful channel of communications.

Like many software houses, Virgin seems to have had its fair share of problems with distributors. "Retailers don't want to have to deal directly with software companies — they want to be able to buy everything from one source. That's where the distributors come in. Unfortunately, because they want their percentage of the profit, it cuts our margins and forces up software prices. It's just an unfortunate function of the marketplace. Distributors also make it difficult to market

[illegible] because they're reluctant to take it in quantity. That's why when we developed an in house graphics utility we sold it through a magazine at 99p rather than trying to get it into the shops. We've looked at things like music software, but our market research led us to the conclusion that we just couldn't make money on it. So we're really only interested in entertainment programs.

'If distributors continue to demand bigger profits many software houses will go out of business. When that happens, though, the software houses remaining will have the upper hand, because they'll be able to dictate terms to the distributors rather than the other way around'

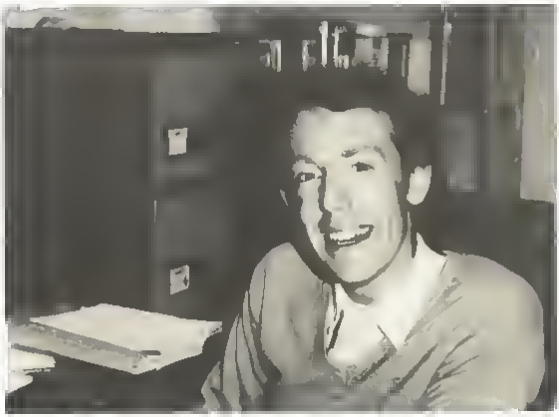
Teamwork

This may sound a pessimistic view of the future, but Nick thinks the overall prospects are bright. "Changes in hardware technology will advance the development of software. In the next five or ten years we'll see computers and programs that can be interfaced with compact disk players, laser disks and other devices, such that creative people in other fields will be able to do something worth looking at. At the moment with the limited memory of the machines available you have to be both a good programmer and economical with memory to get good results."

Virgin's in house development team, along with outside programmers like Steve Lee and Tony Gibson, will presumably be the first to make take advantage of such developments. "The in house team are fantastically dedicated — they're the first in in the mornings and the last to leave at night. It's not just that they know that the fortunes of Virgin Software are directly dependent on their work — they're also games fans, who play everything in the Top Ten. In fact, when it comes to the marketing aspect of the job, they're often able to advise me. It's, not like Thorn EMI, where I worked before I joined Virgin — there, the programmers were very much shut off from the rest of the world, and as a result their productivity went down and down. Now Thorn just act as publishers for bought-in software'.

The team aspect of Virgin Software is an element Nick is keen too stress. "Initially the team idea was against my philosophy, but in this small operation it works well. I can talk to the programmers, since I did a little programming on mainframes, though you won't be seeing Nick Alexander's first game on the shelves! I tend to like things like *Psychedelia*, *Zenji*, and *Caverns of Mars* — mostly non violent. We have meetings every fortnight to kick ideas around, and they're good opportunities to exchange thoughts"

Future ventures from Virgin include the setting up of a budget software label using the Rabbit name. "Rabbit were one of the first companies to do home computer software, and despite their demise the name still carries some reputation. We bought the name for a fairly small amount — nowhere near say, what ASP paid for Quicksilva — and we'll be putting out budget software from September. Most of the games will be new, although some will be back catalogue products which we feel didn't get a fair deal first time around. Budget software is of surprisingly good quality, though we have to shift chunky numbers to make a profit on it"



Other plans include tie-ups with well known books and comic characters, though Nick isn't too hopeful about using Virgin's pop personalities. "I'll be very interested to see how Ocean's **Frankie Goes To Hollywood** game turns out. They're certainly too good to bring out a poor game, although in the past the vogue for licensing deals has led to some pretty bad software. People signed up film and TV titles without really thinking of whether there was a good potential for a game.

'Our Spectrum game The Biz is now doing quite well after a quiet start. That's by Chris Stevey, who is more of a musician than a programmer. We also did the board game Hype, which was a nightmare because, having no experience of that sort of thing, we got the costings wrong, and had to sell it at £17.95 to make money. As a result sales were'nt too good, although with overseas versions it should pay for itself. It wouldn't have been suitable to make a computer game, though.

"With Virgin's film of **1984**, there was potential for a game, but the Eric Blair estate was very reluctant to agree to any licensing deals. All they would authorise was a text-based adventure which would have been very faithful to the book, but which would require two disks to operate. We couldn't see any real market for that. Virgin's pop artists such as Stephen Duffy, China Crisis and so on are doing well, but don't suggest much potential for games spin offs

Polarization

'At the moment we're still working on two projects which have taken a year so far. I'm hoping they'll be in the shops for Christmas. One is based on a well known comic hero, the other on an internationally best selling book. Both will be interactive graphic adventures, using the same sort of artificial intelligence techniques which Imagine talked about in their **Bandersnatch** game"

'I think we're going to see a polarization in the games software industry. Things move so fast that if you make a mistake you can't go back and repackage a product, or take another go at marketing it. The top twenty games now have a good shelf life because the pressure of new releases is perhaps less and the quality of the software is good. At the other end of the market, there's the budget stuff which will sell in large quantities because it's cheap. But we're in a strange period that isn't typical of anything at all — the only possible policy for survival is to not to try to stay flexible. If you try to second guess the future, nine times out of ten you'll be wrong.

"I *believe* that the industry does have a future, but I *believe* it rather than *know* it. Virgin Software has come close to being closed, but with the full backing of the rest of the company we can see the light at the end of the tunnel"

With a dedicated team of programmers, a flexible approach to the market and a range of products covering budget lines, high-quality arcade adventures and big name licensing deals, Nick Alexander's faith in Virgin seems to be fully justified. ■

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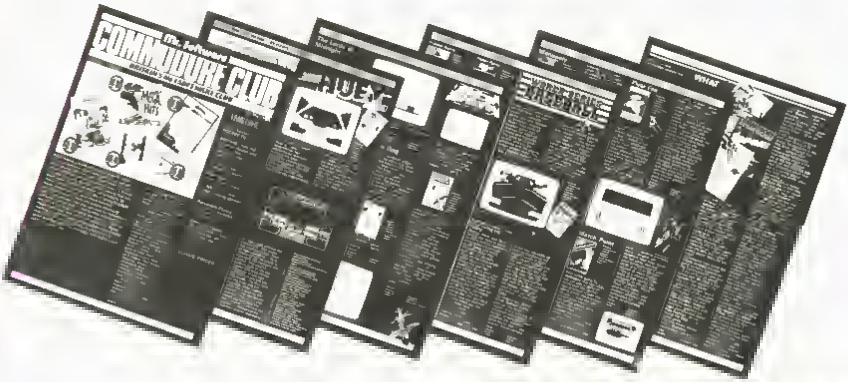

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Executive toys

Tony Mills looks two pieces of hardware with style as well as ability — C Itoh's CBM-compatible C+ printer and Seiko's amazing terminal watch

AS THE market for utility software such as wordprocessors spreadsheets and databases becomes wider, so Commodore users demand more and more from their systems. One of the most important elements of the home system is the printer and increasing numbers of manufacturers are catering specifically for the Commodore user

The C Itoh Riteman C+ is the latest entry to the market, and on style, efficiency and simplicity it seems a strong competitor

Since the C+ is directly compatible with the Commodore serial port you can use it with your Vic 20, 64, C16 Plus/4 or 128 with no interfacing problems at all In this sense, the C+ is best compared to Commodore s own MPS-801, for which it is clearly meant to be a rival

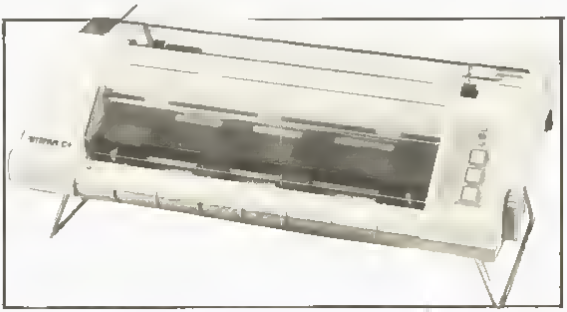
The C+ in fact scores over the 801 on many points. Although it is a dot matrix device, able to reproduce the entire Commodore alphanumeric and graphic set, the design of the hardware itself is much superior to that of the standard CBM printers

The C+ can take perforated, sheet or roll paper since it has both tractor and friction feed Width can be 4-10 ins for tractor feed paper. 4-9 5 otherwise. One unique feature of the machine is that the paper is fed in from the front, as you'll see from the picture, making it much easier to handle. The C+ also has folding legs which allow it to sit over its paper supply — a space saver which many home users will appreciate. This method also allows you to use paper of a wide range of thicknesses — even card

Print speed is also impressive, at 105 cps uni or bi-directional Also available, and full explained in the comprehensive manual, are a number of special print styles such as double strike (giving near letter quality) expanded or compressed, italic, super script sub script and reversed The ink ribbon is fairly easy to fit, although not as easy as the 801's cartridge It's also a non standard shape, so buyers would have to ensure local dealers carried the correct type.

Noise level is kept fairly low by the paper cover The controls are simple, line feed, form feed, tractor/friction feed select, and on line/off-line selectors, together with LED status indicators Switching on whilst holding down the LF key puts the C+ into self test mode, where it runs through the complete character set-

Another feature of the C+ is the ability to print hexadecimal equivalents of the data transmitted to it by switching on while depressing the LF and FF keys There's also a small print buffer-the size depending on the



character size and column settings

The manual is well laid out and illustrated, though it suffers from the odd translationism such as 'Check the ribbon to be translated stably by un-direction" Huh?!

Continued over

Time on your hands

Seiko's RC 1000 connects to the 64 to give you 2K of date storage

DO YOU FANCY having a computer terminal small enough to attach to your wrist, which will beep to remind you of appointments, store useful facts, tell you the time all around the world and wake you up in the morning? Well, it s here — Seiko's RC 1000 Wrist Terminal is either the best example yet of useful electronic miniaturisation, or an expensive executive toy, depending on your outlook

The RC 1000 looks like a conventional digital watch, but does a whole lot more For a start, it has a 2K memory, which enables it to store 80 displays of characters on its liquid crystal display More importantly, it can be interfaced to a wide range of home computers, including the CBM64 using an RS-232 cable supplied with the terminal, and a suitable interface

Normally, the RC 1000 displays the time, date, day, AM/PM and alarm on/off Clipping on the interface lead and pressing the TERMINAL button changes it into much more than a watch — it can now receive information from your 64 loading times being typically 15 or 20 seconds

The software supplied either on tape or disk, is a kind of menu-driven 'scratched' program allowing you to enter data using the 64 s keyboard- then download it into the watch's memory The "sections" and pages" of information are then accessed by pressing the watch's TERMINAL button, and the SET or SELECT buttons to page backwards or forwards

The review model came with lots of useful information already loaded under several headings under MEMO there was a list of names of clients ' with phone numbers, under SCHEDULE ALARM a selection of meetings birthdays appointments and so on, each with a 12-character message and a month day, hour and minute for the alarm to sound, under WEEKLY ALARM more of the same but on a weekly repeating basis under WORLD TIME a list of overseas capitals with their respective times, and under the basic function WATCH, the daily alarm calendar preset to 2020, and hourly time signal

The buttons on the RC 1000 are small, though fairly easy to use unless you have

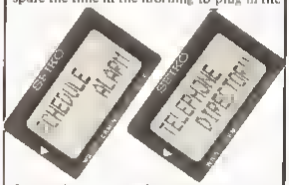
Continued over

Continued

fingers the size of pork sausages. The unit itself is very smart, in brushed black or grey finish.

The Seiko computer watch series includes units such as the UC 2000 and UC 3000 which can be attracted to miniature alphanumeric keyboards, transforming them into complete mini-computers programmable in Basic (one of which even has a built-in printer and cartridge port).

Certainly one for the "whatever will they think of next" department, the RC-1000 is I think more than an executive toy. Unless you're so much of a jet setter that you can't spare the time in the morning to plug in the



thing and program it, the unit could be useful to all sorts of people whose memories are so overburdened that a little technological reminder can be invaluable.

Product: RC 1000 Terminal Watch
Supplier: Hattori Seiko, Berkeley Square House, Berkeley Square, London W1X 5LE, 01-491 0561
Price: Cassette £109, disk, £119

Continued

Fully explained in the manual are the commands OPEN, CLOSE, PRINT#, CMD, and so on as well a methods of setting spacing between lines, using alternative charcter sets, tab setting the print head, perforation skip, paper feed, back space and so on. For most users this sort of information will be of peripheral interest (pun) — if using the machine with commercial software, all they'll care about is its speed and efficiency, which seems to be impressive. This review was originally printed out on the machine, and it compared well with both the Epson RX 80 and MPS-801 I normally use.

Commodore users looking for the perfect complement to their micro might well consider the C+, despite Commodore's forthcoming "bargain offers" on their own equipment. The C+ certainly wins out on features and speed, and as for style, it's in a class of its own — so classy in appearance that it's better suited to the C128 than to any of the current Commodore micros. ■

Hardware: C. Itoh Riteman C+ dot matrix printer
Supplier: C. Itoh Electronics Co, Beacon House, 26/28 Worple Road, Wimbledon, London SW19 4EE, 01 946 4960
Price: £240 + VAT

MATCH OF THE DAY

AS THE SUMMER hots up, the software houses try to lure you away from healthy outdoor activities with more and more programs based on sports. But are they as good as the real thing? Sporting superstars **Brian O'Parrot** and **John McEnormous** study the field . . .

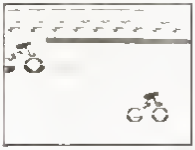
STAR LEAGUE BASEBALL
Activision

Brian "Aye, well it's a grid program. Yon Activision laddies surely know their bytes, though I'm cloughed if I ken what yon instructions are aboot, an' ma heid's no full o' tatties. What's ane "knuckler", or yon "slider" or th "bunt"?

Greet graphics an sound, but yon manual needs translatin intae English!"

SUPERSTAR CHALLENGE
Martech

John, "Gee, I never expected so much from this game. It ain't just a Daley Thompson rip off — there's arm dips, squat thrusts, cycling, football, swimming, shooting, and more. It's all controlled by the joystick, an' ya gotta learn finesse rather than just thrashing away right to left



and hoping for the best. That's why I like it — it's got style, like me."

INTERNATIONAL TENNIS
Commodore

Brian, "Noo, don't get me wrong, just because yon tennis is played by girlies, I woudnae say it's a cissy game. This ane's for

real harrd men — y dinna last the pace long if ye're a nancy boy. It's guid an' easy to play, with ane or twae player options, an' joystick control. Yon court's viewed from the side, an' the skill's in positioning ye'self properly, then controllin' the direction an force of hit by pressing the fire button an' moving yon joystick the reet way. Mind ye, the way that crowd

cheers ye'd think it was John McEnormous on yon curt, nae a collection of pixels."

WORLD CUP FOOTBALL
Artic

John, "Well, maybe your English soccer isn't for girlies either, but it sure can't be as exhausting as a set with Vital Gastroenteritis. This World Cup business lets you pick one of sixteen teams to fight it out for the prize, but I reckon the players all look mighty skinny. Maybe it's the programming, or maybe it's the thin atmosphere in Mexico. Gimme International Soccer any time, at least there you can see who you're tackling!"

INTERNATIONAL BASKETBALL
Commodore

Brian "Aye, it's guid, it's guid, but tell me, laddie, why are there but three players on each side, nae the usual five?

Dinna tell me they ran oot o' sprites! Still, the old International Soccer magic is there, with all the soonds of the crowd an' all the shootinn, dribblinn an tacklinn ye'd want. Yon screen

Continued

scrolls to show the whole pitch so it's just like watchin Match of the Day, except there's no Jimmy Hill Jimmy!"

SLAP SHOT
An rog

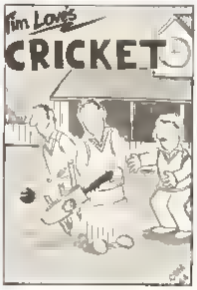
John, "Now this here's a real man's game! It's a two player ice-hockey simulation with three periods of three minutes in each match You got fast and slow mode, plenty of joystick control over the power of your shots, good tackling, and the sprites are great, just peachy

There's software speech that'll clean out your ears, too. But this is what makes me real mad — it's a great game, but you can't

play against the computer! Whoever's responsible for that is the PITS of the WORLD!"

TIM LOVE'S CRICKET
Peaksoft

Brian, "Total joystick control in this one, Jimmy, and that's not just for yon batsman bowlers



and fielders are under your control too, so it's the most realistic cricket simulation yet One or two player option with your own teams or an England and Worrld eleven, with skill points shared among the players. On the first screen the bowler and batsman face up, then when the wee ball's been bowled the program switches to a birrds-eye view of the fielders. It's almost a guid as a game of footba"

CRAZY GOLF
Commodore

John, "I ain't too sure about this one it's for the C16 though, so maybe you gotta make allowances The way I see it, you got joystick or keyboard control of the direction and strength of your strike, then it's up to the ball to find its way through the obstacles to the hole. In the States we ain't got invisible obstacles on our courses, though Gee, you bmeys sure like to make things difficult for yourselves, don't you? I guess it's okay for weekend sportsmen"

ON-FIELD FOOTBALL
Activision

Brian, 'Och, and it's another one where you cannae understand the instructions! I was saying tae the Big Yin only the other day, whit's all this blather aboot "tight ends", "huddles" and "fumbles"? Och it soonds like my ain team in the showers after the match! Once I got intae it, though I could see whit yon Activision scunners

where aboot The prespective graphics are verra realistic, an ye'll improve yoor performance with practice. But I cannae beat the computer yet, and I doon't know if I've the patience with the wee thing to get any better"

ON COURT TENNIS
Activision

John, "This one's gotta be my favourite! You get a choice of clay asphalt or turf surfces, which is more than you get at your crummy Wimbledon, a choice of one or two player options and full racquet control over serves smashes chops and ground

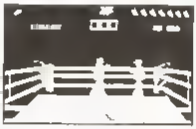
strokes. The clever part is that there's no need to move your player around the court, the program positions him for you, so you can just concentrate on timing your storke. You can choose to play as any one of four players patterned after real tennis champs — and guess which one I choose! Just for a change, this one's easy to play, so you can get straight into it. Even Tatum could play it!"

THE BOSS
Peaksoft

Brian, 'This yin's a bit long in the tooth, but like Malcolm Allison it just won't go away It's no' just an arcade game, mind, it's a realistic simulation where you get to name yon team, make selections, transfer or suspend players, check yon league tables, spy on other clubs and gae through the four divisions, the FA cup, the European Cup and the Cup Winners' Cup — an' probably the Cup Winners' Cup Winners' Cup Shield Trophy Cup an' all. Ye can save the game at any stage, an' the greet thing is that because you can keep on playing even when ye've got to the top, the game never comes to an end — sounds just like watching Walsall second reserves on a Wet Sunday Jimmy!"

KNOCKOUT
Allgata

John, "You cannot be serious! This is supposed to be a boxing game, but you compare it to something like Exploding Fist and it's so much TOAST! I just never seen such dull sprites, such turgid gameplay, what do these guys think they're doing?!"



Brian, "Och, dear! Whit a guid chance tae ladle oot the laldy, an' what a shambolic performance! Ye call this a boxing game, Jimmy — I've seen better fighters in Glasgae Derby an' Joan Club! Poor design, slow action, bad control — this one's got to be relegated!"

Graham Gooch's
TEST CRICKET

BRIAN AND JOHN'S favourite sports game turned out to be Audiogenic's new release, **Graham Gooch's Test Cricket** for the Commodore 64. It's a realistic simulation in which you can either just sit back and watch the action taking place on your screen, or take the part of the England or Australia test teams. The batsman and bowler are controlled by the joystick, with realistic sound effects and speech.

You can select a limited over option, or a full two innings test match, with an authentic scorecard and bowling figures displayed between overs. If you're not happy with your team selection from the Test squads, you can even input your own team names.

Graham Gooch, England's Test opener, was at the Commodore Show in June, and helped us to put together a prize package which should tempt any sports fan. Enter our simple competition and you could win,

- ★A Graham Gooch autographed cricket bat, plus an autographed copy of Audiogenic's Test Cricket game
- ★One of three autographed copies of the game
- ★One of twenty runner-up prizes of copies of Test Cricket

All you have to do to enter is to look at the two cartoons, and count the number of differences between them. There's no need to mark the differences, just count up the number you spot and put that number on a POSTCARD, along with your name and address. Then complete this tie breaker sentence in an apt, original and amusing way in fifteen words or fewer; "I want to bat on Audiogenic's team because ..."

Send your entry to Audiogenic Contest, Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP, to arrive by the last working day of August. Winners will be announced in the October issue. Normal competition rules apply.

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Exploring new worlds on disk

*Bold adventurer **Ken Matthews** looks at two Activision adventures which combine sophisticated interaction with advanced graphics, and previews adventures and competitions yet to come*

THE ABILITY of disk drives to hold and access large amounts of information makes them ideal for handling the complex and memory-consuming arrays and strings of adventure games. Our American cousins have long had the advantage of 'cheap" hardware so it is hardly surprising that almost all of the quality disk based adventure programs appearing in Britain have US origins

The ready availability and success of gems like the Zork trilogy, at affordable prices seems to have prompted other American companies to chance their arm in the UK market

The extra memory available via disk often allows the programmer to add more 'atmosphere' to his creation by the addition of voluminous text (à la Infocom) or some showy graphics and animation. There are many die hard purists who still won't touch a graphic game but I believe they will become fewer as 'creative and interactive' graphics in programs such as Valkyrie 17 and the Trillium games get the acclaim they deserve. This month, therefore, I'll be giving you a rundown on two new 'illustrated text adventures' from Activision.

The first of these, **'The Tracer Sanction'** casts you as an Intergalactic Special Agent charged with tracking down a ne'er do well known as the Wing You must travel the nine planets of the galaxy and collect the clues to lead you to the final confrontation with the enemy

To help you accomplish your task you will need galactic charts and the cash to refuel your ship as you close in on your prey Each of the planets you visit holds the key to the next part of your mission and a few red herrings as well Location descriptions are brief but well compensated for by the lavish graphics which both deserve and require some study, as they sometimes hold an essential clue. Many of the eighty or so screens also boast some animation such as a boggle-eyed hermit and collapsing mine on the planet Jubilex.

Responses

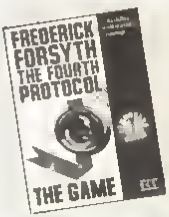
The game understands full sentences although two word commands usually suffice. Some of the responses to common commands became a little monotonous, but the clever use of the function keys to save a lot of effort more than compensated for this minor irritation Of particular note though is the Quicksave facility which saves a current position on the game disk itself in very few seconds, thus saving a lot of time lost swopping disks for each save

The second title, **'Mindshadow'** has a more down to earth setting, in the Robert Ludlum mould with the player lost on a desert island suffering from amnesia and at a total loss as to where to go and what to do. Slowly and painfully you will cross the globe in search of your identity and the traitor who left you marooned to die.

Both of these games share the same features, and each has a tutorial explaining the basics of adventuring on the back of the disk There is also an unusual help feature in each game which allows you to get three hints each time you play making the games even more suitable for the novice

I have thoroughly enjoyed playing both of these games and I would cheerfully recommend them to all but the very experienced adventurer

Finally, I would again like to ask for your letters and suggestions to help us let the Tower reach new heights and warn you to sharpen your wits for next month when I will be announcing details of a new monthly software competition — I promise it'll be easier to decipher than Eureka!! ■



Coming soon...

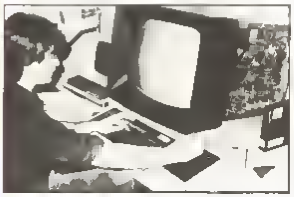
We'll be looking at The Fourth Protocol from Hutchinson, based on the Frederick Forsyth novel, and at Tynesoft's Superman adventure. Plus, the first in a series of adventure software competitions.

Special effects

*As an introduction to this month's feature on CBM 64 graphics, **Chris Jenkins** talks to the company behind some of the small screen's most spectacular images — Computer FX*

THE COMMODORE 64's graphics capabilities may be impressive, but with higher resolution and more storage space computers can create stunning video images which appear almost real

One company at the forefront of computer generated image technology is London based Computer FX. The company's computer equipment would make the average graphics



fan drool — in fact, most of you will have seen Computer FX's fabulous animations on TV in adverts such as those for Ford, the TSB and Zanussi, and programmes such as Max Headroom and Loose Talk

Computer FX's Ian Chisholm explained how the video marvels are performed ' The best pictures are created pixel by pixel, but that's such a complex process that it slows down even the biggest machines So we use a line plotting technique which is faster and gives a very distinctive result"

The equipment is based on a dedicated CAD (Computer Aided Design) station called the IMI 500 It includes a 68000-based Unix operating system, with 256K video memory, 16 Mb storage, and several graphics dedicated processors which altogether operate at a speed of 6 million instructions per second Software specialist Craig Zerroni developed routines which allow images stored in the system to be manipulated in space through any form of rotation by use of a simple joystick

We can adapt the software to the needs of the client, but usually the routines we've developed cover what's needed For Zanussi, I had to write a routine to generate "cup" and "hemisphere' images to depict a computer generated fairy-cake! '

The information on which the animation is to be based is entered from a drafting board using full technical specs for the objects required Andrew Berend and Alan Marques find themselves having to digitise objects as diverse as spaceships and giant dentures — all defined in terms of straight lines. ' To get a curve you have to use the digitising plotter to enter a series of very short lines In the case of an Astra car there were so many curves to digitise that it took two days to mark up the plans, and another day to enter the information The software makes it easy to generate simple geometrical shapes though so some jobs can be done very quickly We can also do hidden line removal, progressive fading on the 'Z' plane to give an illusion of depth and things like "clip planes' which define a cut off point for the graphics which on regular geometrical objects can give you a simple form of hidden line removal."

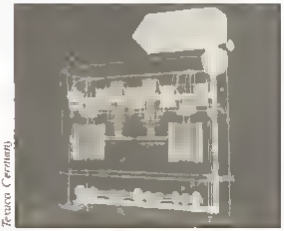
The completed digital images are projected, or "flown', on a display screen The display is monochrome colour is added by filming the images with a relatively unsophisticated pin register 35mm camera, through a series of coloured filters Each set of images is filmed using the particular filter required and with the use of various types of diffusers all sorts of flares glowing effects and halos can be added The filming is usually done at around one frame per second which is as fast as the film can expose.

Ian Chisholm explained that Computer FX hoped to add to its impressive array of capabilities by developing a pixel-plotting system later this year We want to be able to do anything you could possibly want using computer graphics For instance, one client wants a vector plotted background with hand drawn animation over the top. Another might want a single image but drawn in very high resolution The only major hardware difference with pixel plotting is that we'd use lots of small machines rather than one large one for frame storage, to cut the frame time. You can never get enough speed even with the biggest computers but we're working to get

Robinson Lambie Nairn

the stage where if it moves we can use it!"

Computer FX's high-tech systems may seem far removed from the world of the Commodore micro user with his graphics software or graphics tablet, but the next generation of home micros may well incorporate much of the video hardware capabilities we've seen here. The forthcoming Amiga machine has dedicated video and interfacing chips and a huge range of colours and resolutions which may well allow home users to explore the very frontiers of computer graphics ■



Zenith Centauri

Terry Hill

Cover pic Lodge/Cheesman

64 Graphics

*It takes an artist to pass judgement on graphics software — **Stuart Hughes** has his say on the latest 64 packages*

STUART HUGHES is more familiar than most with the world of computer art — his paintings have appeared on the inserts of dozens of computer games books and magazines, including some of the earliest issues of Commodore Horizons. So Stuart is well qualified to comment on the many graphics packages available for the Commodore 64. In a mammoth session in Sunshine Towers one afternoon, we looked at eight packages and asked for Stuart's critical comments

Artstar

Gyron Software, PO Box 195, Manor Park, London E12.

This tape or disk based package comes with a 37 page manual, and can be used with a joystick or lightpen. It can be used to define your own multicolour character sets, or sprites, or as a drawing program.

The command menu has a 16-colour palette, and 24 commands, selected using the F1 key Commands include circle, fill, cursor speed, reverse, flip, and grid.

"The grid function is particularly good it divides the screen into 1000 cells which make it much easier to draw accurately scaled pictures"

Doodle

Quicksilva, c/o Argus Press Software (as below)

Disk or tape, joystick or trackball, Doodle is one of the most powerful graphics packages There are ten function modes selected by the function keys Commands include ZOOM

which can enlarge any chosen portion of the drawing, various box and circle options, brush shape, fill, grid, mirror, negative (which reverses all the colours of the drawing), copy, and letter to include text

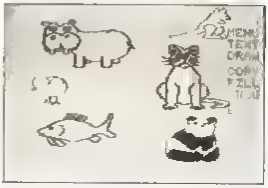
Doodle is set up to print out on a CBM 1525 printer though it can be configured for other machines Saved sketches can be incorporated into your own Basic programs.

"There's no stopping me now! The cursor is really fast and smooth and the circle and ellipse functions are excellent The fill function is good too. This program is sophisticated, but also easy to use straight away without spending hours on the manual Great"

Activity Centre

Argus Press Software, Liberty House, 2 Regent Street, London W1

This package is a mixed bag, enabling you to draw and animate pictures, overwrite text, and add music. It's disk based The drawing program only lets you use four colours at a time, which are selected from a menu with the joystick then stored in a form of "notebook" Commands include Circle, Line, Fill, Box and Copy



"I think I could draw better circles than that freehand — for some reason they're all squashed I can't do anything with this one; the cursor moves so slowly that you can't really control it, and if you speed it up it skips pixels rather than just drawing faster"

Tony Hart's Art Master

Commodore (as below)

The high resolution companion to the low-res Rolf Harris program, Art Master comes on tape or disk, and features a command box on

the drawing screen which gives the current control status. Features include lines circles, fills, and repeating blocks. You can print out your completed pictures using a Commodore printer

"I found this one very user UNfriendly I just had to give up on it in the end The demo pictures are impressive but it's very difficult to achieve similarly professional results"

Gaskit

Anirog, 29 West Hill, Dartford, Kent, 0322 92518

Another multiple package, which enables you to draw animate and compose music. The tape based program adds 23 commands to

Basic which make it much easier to create your own programs The graphics routine allows you to use a thin "pencil" or thicker "brush" which can be controlled by keyboard or joystick Automatic functions include circle, line and centering You can also define a "sequence" of movements which can be repeated any number of times

"Very easy to use in drawing mode — smooth cursor movements though the

controls aren't very obvious and take some getting used to

Rolf Harris' Picture Builder

Commodore, 1 Hunter's Road, Weldon North Industrial Estate, Corby, Northants, 0536-205555

This taped-based package is for younger artists, and uses the standard Commodore graphics set or a specially defined set as "building blocks" to construct pictures

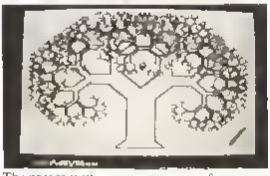
There are sixteen colours and seventeen characters available in each set and some surprisingly detailed pictures can be constructed bearing in mind the limitations of

low-resolution

"This is a good package for kids, but doesn't offer enough to keep more ambitious artists satisfied"

Designer's Pencil

Activision, 15 Harley House, Marylebone Road London NW1 01-486 7588



The programming screen consists of a prompt window which accesses the save and load options, an instruction set, which allows you to set colours and define pencil movements, master commands which affect the overall screen, and a programming area which allows further control of graphics sequences and musical routines.

The programming language PROG is used in conjunction with more conventional graphics techniques and joystick control to produce some of the most complex graphics available on the 64

"It's not easy to get the best from this program, but once mastered it's very powerful"

SuperSketch Graphics Tablet

Anirog (as above)

Reviewed, in full below, SuperSketch is an inexpensive graphics pad which comes with powerful and user-friendly software, with a full range of commands, colour fill, line, box, circle, mirror brush shape, pattern fill, and so on SuperSketch can print out to the MPS 801, and because it operates with a moving stylus it can have existing artwork laid over it for copying and adapting "I liked this very much — it's very easy to use, with clear menu functions, and it's easy to come up with good designs, either realistic ones or abstracts"

Pictures by pixels

BY FAR THE quickest and easiest way to make use of the superior graphics facilities of the 64 is to use a graphics tablet If you've tried to cope with the complexities of hi res programming in Basic you'll appreciate the simplicity of using such hardware even more

Most graphics tablets are basically pressure-sensitive surfaces which transmit information to the hi res screen via software SuperSketch from Anirog takes a slightly different approach, which gives equally good results at a lower cost than, say, KoalaPad or Grafpad

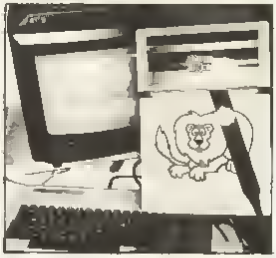
The SuperSketch consists of a plastic drawing board and a four-button control panel, connected to a stylus on a moveable arm The mechanical movements of the arm are transmitted to the 64 in digital form, enabling you to define points on the monitor screen with fair accuracy The software does the rest

You can make an easy start with Super Sketch by clipping one of the example drawings supplied to the tablet, loading up the disk or tape software and plugging the pad into the joystick port On the screen appears a cursor and a menu To start drawing you merely move the cursor to DRAW press the SELECT button on the pad and start moving the stylus around — it will leave a line on the screen wherever it goes At the bottom of the screen appears a zoom window showing in close up the area around the cursor, enabling you to exert fine control over each pixel (if your hand is steady enough!)

Pressing a button on the pad makes the MENU return, and you can then opt to erase some unwanted points (simply by going over them again with the cursor), fill areas with colour change colours around, swap from "page one" to 'page two' (two different drawings can be held in memory simultaneously), or choose the shape of the "brush" with which you are 'painting' from a range of eight

It's also possible to paint in "designs , for instance a brick wall pattern, making it easy to fill large areas quickly

The "expert" menu, a subsection of the main menu, contains a range of powerful functions designed to make both abstract and realistic designs easier Lines, rays, boxes circles, adding text, and various copy and reflect functions are included.



You can also define a window which will limit the area of operation of these functions

One of the best functions of SuperSketch is a very easy to use printer output routine It's designed to work with CBM MPS 801 or 1525 printers though Epsons using the Comprint interface from Micro Control Systems will work perfectly The manual also includes instructions on incorporating graphics, and the print-out utility, in your own programs ■

Product SuperSketch graphics tablet for the 64
Supplier Anirog, Unit 10, Victoria Industrial Park Victoria Road, Dartford, Kent
Price £49 95

Adding a little flash to your 64

Adding commands to 64 Basic can be painless even if it involves machine code **John Sykes** *explains how to create a FLASH routine*

MANY POPULAR home micros have a FLASH command 'built in', which allows the user to type FLASH or FLASHON or so on, and specify a line number and all the text on this line (or just part of it), will be flashed. This sort of thing can be simulated in CBM Basic of course, using a simple FOR/NEXT loop, printing the line and then a line of spaces over it alternately. The problem with this method though is that it ties up the machine whilst this flashing is going on, only giving you time to check for an input or Keypress before you have to loop back, in order to keep the flashing going at a reasonable speed.

Interrupts

This routine, being written in machine code, does not suffer from this problem — you just set the flashing going, and forget it — it carries on by itself, leaving the program to get on with the important stuff at its own speed (well, very nearly).

In fact this 'routine' consists of three separate subroutines: the first modifies the IRQ interrupt vector to point to the start of the second routine, which is responsible for the actual 'hard work' — ie the flashing. The third 'routine' simply restores the IRQ interrupt, to turn the flashing off.

Now many novice (and some very experienced) machine code programmers are afraid of these things called 'interrupts', usually because they have been told that they interrupt the CPU chip itself. This is, of course, quite true — but what many people fail to realise is that this will not STOP the chip, just divert its attention elsewhere.

What actually happens is that whilst the C64 is operating with no program running, an interrupt occurs every 50th of a second (in Europe). At this point the keyboard is scanned, any input is stored in the keyboard buffer, and the machine returns to whatever it was doing before (usually menial tasks, such as keeping things displayed on the screen).

What the programmer can do, however, is to force this interrupt handler routine to go and perform some task for him BEFORE reading the keyboard and so on — 50 times a second. This is what this Flash routine does, in essence.

To actually use the routine, of course, you do not really need to know anything about machine code, interrupts, assembly language or any of the other things I've been going on about above. All you really need to know is that the command is in the form

SYS(49171)row,column,number,colour1,colour2,duration

This looks a bit daunting at first, but is not too bad, when you get used to it.

ROW	Screen row (0-24), where the first text to be flashed is located
COLUMN	Screen column (0-40), of first character to be flashed
NUMBER	Number of characters (1-255) to be flashed (after the first)
COLOUR1	Colour (0-15) that the text will be on cycle 1 (see below)
COLOUR2	Colour (0-16) that the text will be on cycle 2 (see below)
DURATION	Number of cycles (50th of a second) to display each colour

Now, if the business of COLOUR1 and COLOUR2 has you confused, I will try and explain — although the best way to find out is to try the routine, and keep changing the numbers.

In many FLASH routines built into BASIC dialects, the user only specifies one colour, and the text is flashed between this colour and that of the background (whatever that may be), making the text appear and disappear alternately. This routine will do this if you set colour2 to the background colour, or set it to 16. If it is set to 16, then the background colour may be changed, but the text will still appear and disappear as before (see the demonstration program — lines 240,250 — for an example of this.)

Duration

That, then, is what you might call a 'normal' flash, where text is alternately visible, and invisible. What this routine does in addition to this is allow you to give TWO colours — both different to the background colour, and flash between these two. This can produce some very interesting effects, using 1 for COLOUR1 and 7 for COLOUR2 for instance can give the impression of a line going dark and then bright again — expecially on a black background.

Finally, a word on DURATION. What you are actually doing when you give a number for DURATION is specifying how many 50th's of a second you want the text to be each colour (or colour and background). 50 seems a reasonable figure for this parameter, but you may prefer some other speed.

All in all then, the easiest way to find out

about the routine is to use it, and I think you will find it a lot simpler to use than I have made out. One word of warning though: giving parameters above the maximum range will result in an "ILLEGAL QUANTITY ERROR", but using negative values may crash the machine, so I wouldn't try it — they don't mean anything to the routine, anyway! Also, it is advisable to turn the routine off during DISC or TAPE operations, as these may not work if the routine is operating.

To switch off the routine use,
SYS(49322) (with NO parameters)

Most of all, experiment — some quite nice effects can be achieved with a bit of judicious flashing (but not in public — you'll get arrested!)■

FLASH ROUTINE — CBM 64

```
100 :
110 REM ******************************
120 REM **  DEMONSTRATION OF FLASH   *
130 REM **          ROUTINE          *
140 REM ******************************
150 :
160 POKE 53280 0:POKE53281,0:PRINTCHR$(147)CHR$(159)
170 PRINTCHR$(147)TAB(124)"PLEASE WAIT";GOSUB 1100:PRINTCHR$(147)
180 FLASH=49171:NOFLASH=49322
190 FORF=1TO23:PRINT"TEST TEST TEST TEST TEST TEST TEST TEST":NEXTF
200 SYS(FLASH)10,00,40,7,1,50
210 FORF=1TO5000:NEXT
220 SYS(NOFLASH)
230 PRINTCHR$(147):FORF=1TO9:PRINT:NEXT:PRINT"FLASHING LINE"
240 SYS(FLASH)10,00,40,1,16,30
250 FORF=0TO15:POKE53281,F:FORG=1TO1000:NEXTG,F
260 SYS(FLASH)10,00,240,1,3,60
270 POKE53281,0:PRINTCHR$(147)CHR$(159):LIST-260
1000 :
1010 REM ******************************
1020 REM ** ROUTINE TO LOAD THE DATA  *
1030 REM **         INTO RAM          *
1040 REM ******************************
1050 :
1100 FOR N=0TO185:READ D%
1110 IF D%>255THENRETURN
1120 POKE49152+N,D%:NEXTN
1801 FLASH=49171
10000 :
10010 REM ****************************
10020 REM ** THIS IS THE DATA FOR THE *
10030 REM **        MACHINE CODE      *
10040 REM ****************************
10050 :
11000 DATA1,5,2,7,40,0,10,0,255,0,255,17,16,255,24,40,76,72,178,168,6,141
11010 DATA9,192,32,138,173,32,247,103,165,21,208,230,165,20,172,0,102,217
11020 DATA9,192,176,228,153,0,102,206,9,192,240,6,32,253,174,76,24,192,133
11030 DATA254,120,169,73,141,20,3,169,192,141,21,3,88,96,160,216,133,252
11040 DATA169,0,133,251,160,173,0,192,208,1,200,185,2,182,133,253,172,6
11050 DATA192,240,19,169,40,24,101,251,133,251,176,6,136,208,244,76,117
11060 DATA192,230,252,208,246,173,5,192,24,101,251,133,251,144,2,230,252
11070 DATA165,253,201,16,208,3,173,33,208,145,251,200,204,4,182,208,248
11080 DATA206,1,192,240,3,76,49,234,173,0,192,70,1,141,0,182,165,254,141
11090 DATA1,192,76,49,234,120,169,40,141,20,3,169,234,141,21,3,88,96,300
READY.
```

Remember to SAVE the routine before RUNing it
as any errors in the DATA could cause a crash !

The eternal triangle

***Trevor Doherty** investigates an age-old story of ambition, high finance and integration in the steamy world of Commodore 64 business software*

IN THE WORLD of business software, there is a move towards integration, particularly the ability to share data between the three essential pieces of software word-processing spreadsheet and database.

Triangle gives you all three packages together on one disk, at under £15! The package is under licence from the US software house Softsync Inc., selling in the States under the name Trio.

Loading Triangle from disk, following the well presented 15 page manual, a menu allows you to select any of the three programs, word, calc or file. Once in a program you can load one of the others or exit to Basic without resetting the computer Data held must be saved to disk before you change otherwise it will be lost Each program has Help information called up from the disk, and displayed in a window overlaid on the screen

The word-processor allows a maximum of 400 lines in a single document, a number of documents can be linked "globally" for printing. The text can be split between two working areas, the main area and the 'clipboard' which can be used to store paragraphs or names and addresses, to be merged with the main document Triangle Word Is a post-formatting word-processor, the printed format is not shown on the screen but controlled by formatting commands On the 40 column 64 this is a perfectly acceptable way of working. as the many users of Commodore's Easyscript will testify Like Easyscript, Triangle Word splits words at line ends on the screen, unlike Easyscript there is no way of pre viewing the text in printed format, you have to wait until you print it Triangle Word is one of the easiest to use word processors I have come across, that in itself is a recommendation.

The command structure is wonderfully easy to remember Most functions use CTRL plus another key, full use is also made of the function keys and other logical keys such as INST/DEL and HOME Thus to search for a word or phrase you press CTRL then S, to print CTRL then P You can insert, delete and move or copy blocks of text easily, but when dealing with a section of text you are limited to moving or copying a number of whole lines. You can access the full range of typefaces such as underline, italic etc, but Triangle Word only supports printers on the serial interface. The limitations of Triangle Word are easy to live with and the compromises it makes won't matter to many home or small business users I liked it

Unfortunately, everything isn't so rosy for Triangle Calc, which has one major drawback in the way cells are referenced A spreadsheet organises numbers and text into rows and columns, allowing calculations to be carried out by referencing the 'cells' containing the numbers Virtually every other spreadsheet uses a variation on a system like the game 'battleships' to reference cells, the top right hand corner is a1, with b1, c1 etc across the page and a2, a3 etc going down Not so with Triangle Calc cells are referenced as r1c1, r1c2 etc in one direction and r2c1, r2c1 etc in the other To add up two cells you need to type in r1c1 + r2c1 instead of a1 + b1, worse still if you want to copy the calculation to use in another column you need to use a fiendish system of relative addressing Thus you would say r[−2]c + r[−1]c translated that means two cells up in the same row added to one cell up in the same row It sounds complicated, and it is! Give me A1 + B1 any day

It is a shame about the cell addressing because the rest of the spreadsheet is a delight to use and includes one feature which I haven't seen before You can fix a column as a title and then scroll sideways to look at some of the figures in columns across the sheet Press the 'up arrow' key and the titles appear to remind you what the rows are until the key is released. A clever and sensible feature for a spreadsheet using a narrow 40 column screen. Cells can be edited, column widths individually altered A full copy function is provided and there is a good range of mathematical functions.

The main functions are accessed in a similar way as in Triangle Word but the way you use the function keys is different, you press CTRL and the letter key simultaneously not one after the other — why couldn't it be consistent? A helpful reminder of the functions available is displayed on the screen If you could ever get used to (or even understand) the cell referencing, the rest of it is good.

The database (rather a grand name for this 'cardbox' filing system) is simple, straightforward and extremely easy to use. Up to 17 fields are allowed per record, with the number of individual records only limited by disk capacity

Data can be entered edited and searched for as required The only real drawback appears to be an inability to browse through the records without knowing their contents You could get round that by adding a record number as one of the fields. Triangle File is one of the neatest little filing systems I have seen on the 64

The integration between these packages is described as 100% on the cover, actually it falls considerably short of that In practice data can only be easily moved in one direction, from Calc and File into Word That is exactly what is needed for most jobs– so that's fine. Despite my reservations about Triangle Calc, this multiple package offers so much for so little money, there is no comparison You would need to spend £70 on Practicalc II to do better Either as a starter business package, as the single piece of software needed to help you run your club or sort out your home business Triangle gets my recommendation ■

Software: Triangle 64
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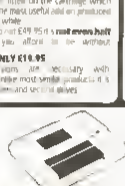

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Gooks

THIS GAME for the 64 comes from Luke Logan of Derby

GOBBLEDEEGOOKS is a chase game featuring a harmless frog called Fred When his home is invaded by the strange alien Gobbledeegooks peace-loving Fred tries to avoid them rather than fighting Using a joystick in port 2, move Fred around the screen, keeping him out of reach of the gobbledeegooks for as long as you can. If you allow them to touch you you'll die, but if you stay out of reach long enough you can enter your name on the high score table. Here's a hint, the baddies will always move straight towards you, so try to make them move diagonally

```
1 REM*********************************
2 REM*  GOBBLEDEEGOOKS  BY L.LOGAN   *
3 REM*********************************
5 HT=100 HI$="CBM-64" GOSUB5800
49 REM SPRITES "
50 DATA0 20 0 1,85,64 5,85 80,21 85 84 31,215 244,20 215,52 29,255,116
55 DATA28,255 52,31 255 244,23 255 212 7 125 208 7 255 208,0 235 0,0,235,0
60 DATA15,235 240 15 255 240 3 195,192 3,0,192,3 0,192,15,0 248 63 0,252
65 DATA224 60,7,224 255 7,195,255,195,199,126 227 198 60 99 198,60,99
70 DATA199 126,227,199 126 227 199,255,227 199 219,227,255,255 255,124,231 56
75 DATA12 0,48,6 0,96,3 24,192,7,153 224 12 255 48,24 126,24,48,8,12,112 0,14
80 DATA240 0,15
100 POKE2040,192 FORT=12288TO12358 READN POKET,N NEXT
105 POKE2041,193 POKE2042,193 FORT=12352TO12414 READN POKET,N NEXT
110 V=53248 POKEV+21,7 POKEV+28,1 POKEV+39,2 POKEV+38,5 POKEV+37 0 POKEV+40 14
149 REM DISPLAY
150 PRINT"■" FORT=1024TO1053 POKET,160 POKET+54272 0 NEXT
155 FORT=1024TO1984STEP-0 POKET+38,160 POKET 168 POKET+54272 0 POKET+54302,0 NEX
T
160 FORT=1984TO2013 POKET 168 POKET+54272 0 NEXT
170 X1=32 Y1=58 X2=239 Y2=58 X=133 Y=211 S=54272 SC=0
175 POKEV+30 0
180 POKEV X POKEV+1,Y POKEV+2 X1 POKEV+3 Y1 POKEV+4 X2 POKEV+5 Y2
199 REM**MOVE GOBBLEDEGOOKS**
200 IFX>X1THENX1=X1+1
205 IFX<X1THENX1=X1-1
210 IFY>Y1THENY1=Y1+1
215 IFY<Y1THENY1=Y1-1
220 IFX>X1THENX1=X1+1
225 IFX<X1THENX1=X1-1
230 IFY>Y1THENY1=Y1+1
235 IFY<Y1THENY1=Y1-1
240 IFX>X2THENX2=X2+.5
245 IFX<X2THENX2=X2-.5
250 IFY>Y2THENY2=Y2+.5
255 IFY<Y2THENY2=Y2-.5
260 IFX>X2THENX2=X2+.5
265 IFX<X2THENX2=X2-.5
270 IFY>Y2THENY2=Y2+.5
275 IFY<Y2THENY2=Y2-.5
399 REM**JOYSTICK ROUTINE**
400 JV=15-PEEK(56320)AND15
410 IFJV=1THENY=Y-3
415 IFJV=2THENY=Y+3
420 IFJV=4THENX=X-3
425 IFJV=8THENX=X+3
430 IFJV=5THENY=Y-3 X=X-3
435 IFJV=6THENY=Y+3 X=X-3
440 IFJV=9THENX=X+3 Y=Y-3
445 IFJV=10THENX=X+3 Y=Y+3
450 IFX1<32THENX1=32
455 IFX2<32THENX2=32
460 IFX1>239THENX1=239
465 IFX2>239THENX2=239
470 IFY1<58THENY1=58
475 IFY2<58THENY2=58
480 IFY2>221THENY2=221
485 IFY1>221THENY1=221
488 IFPEEK(53278)=30ORPEEK(53278)=5ORPEEK(53278)=7THEN1000
490 IFX<32THENX=32
491 IFX>239THENX=239
492 IFY<58THENY=58
493 IFY>221THENY=221
500 PRINT"[illegible]SCORE",
510 PRINT"[illegible]" SC=SC-1
540 GOTO128
1000 POKES+24,79 FORT=58TO1STEP-1 POKES+4 17 POKES T POKES+1 T POKES+5 15
1010 POKES+6 15 POKES+4 16 NEXT POKES+24 0 POKEV+21 0
1020 PRINT"[illegible]THE [illegible]GOBBLEDEEGOOKS GOT [illegible]FPEDERICK."
1030 IFSC<HITHEN1050
1040 INPUT"[illegible]ENTER YOUR NAME PLEASE" HI$ HI=SC
1050 PRINT"[illegible] PRESS ANY KEY TO PLAY GOBBLEDEEGOOKS [illegible]"
1060 POKE198,0 WAIT198 1 GOSUB5000 POKEV+21 7 GOTO [illegible]
4999 REM**TITLES
5030 PRINT"[illegible]" POKE53281,6 POKE53280 0
```

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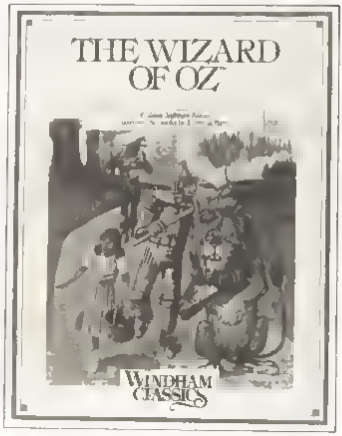

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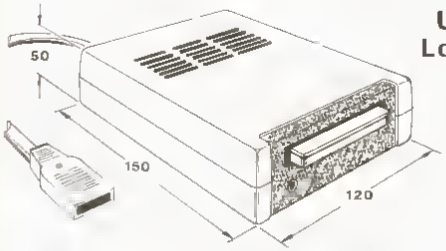

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```
5010 PRINT [illegible]
5011 PRINT [illegible]
5012 PRINT [illegible]
5013 PRINT [illegible] THE [illegible] PACIFIC [illegible]
5014 PRINT [illegible]
5015 PRINT [illegible]FREDI [illegible] HAS BEEN INVADED    BY [illegible]OBBLEDEEGOOK [illegible]
5016 PRINT [illegible]PEP HAS N [illegible] CHANCE [illegible] SURVIVAL BUT HE   WONT GIVE UP WITHOUT
5017 PRINT [illegible] FIGHT-[illegible]SCORE HI' BY [illegible] HI$
5018 PRINT [illegible] GIDE HI [illegible] TI [illegible] II PORT 2'
5019 PRINT [illegible] [illegible]
5020 POKE196,0 WAIT196 1 RETURN
```

Space Grid

THIS PROGRAM for the C16 comes from Jason Stone of Orpington, Kent

SPACE GRID is a two player game. One player starts at the top of the grid. His task is to reach the exit at the bottom. The other player is the Grid Master, and his job is to stop Player One.

The players take it in turn to move by typing in directions, NE, NW, E, W, S, SE, SW. Player One is shown as a blue dot, but the Grid Master is invisible. The grid master wins by placing himself on the spot Player One will occupy next. If he steps onto a spot already occupied by Player One, he loses. Player One's exit point is marked — if he reaches it, he wins.

Instructions are included in the program.

```
10 REM SPACE GRID  BY J.STONE ,1985
20 COLOR0,1:COLOR4,1:P1=3072:C1=2048:VX=23:X=17:Y=3:VY=21:VOL8
30 REM TITLE PAGE
40 PRINT"[illegible]**************SPACE GRID**************"
50 PRINT"[illegible]THE AIM OF THE GAME IS TO CAREFULLY GUIDE"
60 PRINT"YOURSELF FROM THE TOP OF THE GRID TO THE"
70 PRINT"THE EXIT AVOIDING THE GRID MASTER WHO"
80 PRINT"STARTS AT THE EXIT AND IS OUT TO TRY TO"
90 PRINT"EVAPORATE YOU ."
100 PRINT"BUT BECAREFUL. THE MASTER IS INVISIBLE !"
110 PRINT"[illegible]*****************************************"
120 INPUT"[illegible]PLEASE ENTER YOUR NAME",N$
130 PRINT"[illegible]PLEASE ENTER MANE OF THE PERSON WHO WILL"
140 INPUT"PLAY AS GRID MASTER ",V$
150 PRINT"[illegible]PLAYER IS ",N$
160 PRINT"GRID MASTER IS",V$
170 PRINT"[illegible]DO YOU WANT THE INSTRUCTIONS (Y/N)[illegible]?"
180 GETKEYA$:IFA$=""THEN190
190 IFA$="Y"THENGOTO1000
200 IFA$="N"THEN220
210 GOTO180
220 GOSUB1200:GOTO330
230 GOSUB500:POKEP1+VX+40*VY,81:POKEC1+VX+40,2:POKEP1+X+40*Y,81
240 POKEC1+X+40*Y,14:INPUT"[illegible]WHAT IS THE GRID MASTER'S MOVE",M$
250 POKEC1+VX+40,2:G=VX:H=VY:GOSUB500:VX=G:VY=H:GOSUB340
260 IFX=VXANDY=VYTHEN350
270 POKEP1+VX+40*VY,81:POKEC1+VX+40,2:PRINT"[illegible]PRESS A KEY"
280 GETKEYA$
290 GOSUB340:POKEP1+X+40*Y,81:POKEC1+X+40*Y,14:PRINT"[illegible]",N$;
300 INPUT",WHAT'S YOUR MOVE",M$:POKEC1+X+40*Y,2:G=X:H=Y:GOSUB690:X=G:
    Y=H:GOSUB91
310 GOSUB340:POKEP1+X+40*Y,81:POKEC1+X+40*Y,14:IFX=VYANDY=VYTHEN400
320 IFY=21THEN430
330 GOTO230
340 SOUND1,400,10:RETURN
350 GOSUB480:PRINT"[illegible]THAT WAS AN ILLEGAL MOVE,";V$
360 PRINT"YOU HAVE BEEN DISQUALIFIED !!!"
370 PRINT"[illegible]HIT     ANY     KEY"
380 GETA$:IFA$=""THEN380
390 GOTO430
400 GOSUB530:PRINT"[illegible]",N$;" HAS BEEN EVAPORATED INTO SPACE.[illegible]"
410 PRINTV$,"[illegible],YOU ARE FREE TO LEAVE. "
420 GOTO940
```

continued on page 44

```
430 SOUND1,800,10
440 PRINT"■■WELL DONE ",N$ PRINT"YOU HAVE BEATEN THE MASTER,"
450 PRINT"■YOU ARE FREE TO LEAVE"
460 GOTO470
470 GOTO940
480 SOUND1,800,20
490 REM DRAW GRID
500 PRINT"■■■■" FORI=1TO4 PRINTTAB(17)"●———●"
510 IFI<4THENPRINT"■■■■" NEXTI
520 PRINT"■■■■" FORI=1TO2 PRINTTAB(16)"/ \   / \"
530 IFI<3THENPRINT"■■■■" NEXTI
540 PRINT"■■■■■" FORI=1TO3 PRINTTAB(15 "/   \ /   \"
550 IFI<3THENPRINT"■■■■" NEXTI
560 PRINT"■■■■■■" FORI=1TO3 PRINTTAB(14) ●———●———●"
570 IFI<3THENPRINT"■■■■" NEXTI
580 PRINT"■■■■■■■" FORI=1TO2 PRINTTAB(15)"\   /   \/"
590 IFI<3THENPRINT"■■■■" NEXTI
600 PRINT"■■■■■■■■" FORI=1TO3 PRINTTAB(16)"\   /   /"
610 IFI<3THENPRINT"■■■■" NEXTI
620 PRINTTAB(19)"■■■EXIT■"
630 PRINT"TTTTTTTTTTNW   NE"
640 PRINT"          /"
650 PRINT"  W ——— E"
660 PRINT"    /   \"
670 PRINT"  SW   SE"
680 REM MOVEMENT OF PLAYERS
690 IFM$="E"THENG=G+6
700 IFM$="W"THENG=G-6
710 IFM$="NE"THENG=G+3 H=H-3
720 IFM$="NW"THENG=G-3 H=H-3
730 IFM$="SE"THENG=G+3 H=H+3
740 IFM$="SW"THENG=G-3 H=H+3
750 IFG<14THENG=14
760 IFG>26THENG=26
770 IFH>21THENH=21
780 IFH<3THENH=3
790 IFH=3ANDG<17THENG=17
800 IFH=3ANDG=20THENG=23
810 IFH=3ANDG>23THENG=23
820 IFH=9ANDG<17THENG=17
830 IFH=9ANDG>23THENG=23
840 IFH=15ANDG<17THENG=17
850 IFH=9ANDG>23THENG=23
860 IFH=15ANDG<17THENG=17
870 IFH=15ANDG>23THENG=23
880 IFH=21ANDG<17THENG=17
890 IFH=21ANDG>23THENG=23
900 RETURN
910 IFX=VXANDY=VYTHEN400
920 RETURN
930 REM ANOTHER GO?
940 PRINT"■HAVE YOU TIME FOR
    ANOTHER GAME (Y/N)?"
950 GETA$
960 IFA$="Y"THEN10
970 IFA$="N"THENEND
980 GOTO950
990 REM INSTRUCTIONS
1000 PRINT"■■              INSTRUCTIONS
1010 PRINT ----------------------------------------
1020 PRINT"■■■,N$," STARTS AT THE TOP OF THE GRID.
1030 PRINT"THE GRID MASTER STARTS AT THE BOTTOM.'
1040 PRINT"■ THE PLAYER MUST GET TO THE EXIT WITHOUT'
1050 PRINT"STEPPING ON THE GRID MASTER'S POSITION'
1060 PRINT"THE GRID MASTER CANNOT STEP ON PLAYERS,
1070 PRINT"HE MUST FORCE THE PLAYER TO STEP ON HIM"
1080 PRINT"■THE PLAYER IS SHOWN BY A BLUE BALL.'
1090 PRINT"BUT THE MASTER IS THE SAME COLOUR AS THE"
1100 PRINT"GRID,SO THE PLAYER WILL RUN INTO HIM !"
1110 PRINT"■YOU CAN MOVE USING THE THESE LETTERS '
1120 PRINT"■■■■■■■■■■■■■■NW  NE
1130 PRINT"■■■■■■■■■■■■■■■  /
1140 PRINT"■■■■■■■■■■■■■■■■ — E'
1150 PRINT"■■■■■■■■■■■■■■■  \"
1160 PRINT"■■■■■■■■■■■■■■■ W  SE'
1170 PRINT"■■■     PRESS ANY KEY TO PLAY  WHEN READY
1180 GETKEYA$
1190 GOTO220
1200 REM TITLE TUNE
1210 SOUND1,858,25
1220 SOUND1,868,30
1230 SOUND1,885,25
1240 SOUND1,858,35
1250 SOUND1,838,30
1260 SOUND1,815,20
1270 RETURN
```

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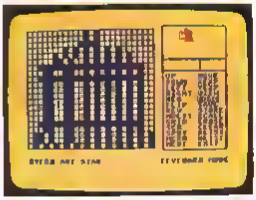

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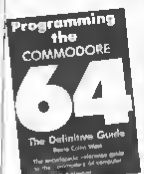

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Pressing problem

I WAS interested to read the Answer Back reply to the query about the storing of keyboard matrix values. Here, I thought, is the answer to a little problem puzzling me. I have a game, Pinball Wizard which features two "flippers" one operated by the left shift key and one by the right. I tried PEEKing and PRINTing 203, but some keys give no result including the SHIFT keys. How do they decide which one is being pressed to operate a "flipper"?

R A Mascall
Thornbury
Bristol

THE SHIFT KEYS are detected by PEEK(653)=1, but this peek will not distinguish between left and right keys. On the Vic 20 it is easy to detect the left shift,

```
10 GET A$
20 IF PEEK(145)<>253
   THEN 10
30 PRINT "LEFT SHIFT
   DETECTED"
```

This does not work on the 64, so the detection of the left shift key requires a machine code routine. The 64's keys are wired into a matrix of eight rows and eight columns. These are scanned using two bytes, $dc00 and $dc01. The act of pressing a key (grounding it) sets a zero value which can be detected by the appropriate routines.

Right to left

FOLLOWING the procedure in the *Programmers Reference Guide* I have created a Hebrew character set on the 64 but two problems have come up. Firstly since Hebrew is written from right to left how can I reprogram the cursor so that it moves in the same direction? Secondly how can I make the programmable characters print out on the MPS 801 printer?

Dr D Wynne
Sfat
Israel

THE NECESSARY machine code routines would be much too complex to print here, but you might like to contact JCL software, 1 Sheffield Road, Southborough, Tunbridge Wells, Kent, who have produced a cartridge which allows the 64 to operate in Arabic/English. Perhaps they are working on one for Hebrew as well. See the next letter for some more advice.

Dot values

I HAVE A 64 and an MPS-801 printer. Is it possible to design a new character set to view on the screen then copy out to the printer?

E Nathan
Plumstead
London

YOU CAN use CHRS(8) to put the MPS-801 into graphic mode. In this mode, the dot pattern of characters to be printed can be defined as a 6x7 matrix, that is six columns of seven dots. Add 128 to the value for each column, for example, where a,b,c,d,e,f are the dot values required for the first row of the character;

```
10 OPEN 4,4
20 FOR I = 1 TO 7
30 READ A$X$=X$CHRS
   (A+128)
40 NEXT
5ft PRINT #4 X$ X$=""
   REM your own program
   would repeat for seven
   rows for each character
60 PRINT #4, CHRS(15)
   REM returns to normal
   text mode
70 CLOSE 4
80 END
90 DATA 8,a,b,c,d,e,f REM
   a,b etc are numerical
   values
```

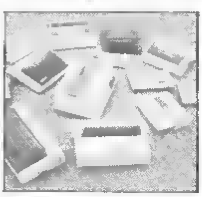
The above would be used in conjunction with a screen dump program, an example of which can be found in Raeto West's book *Programming the 64*.

Baby brother

I HAVE a 64 connected to a Brother EP22 printer with a Stack RS-232 interface and cable. I have had no luck getting the EP22 to print even after following all the instructions from the EP22 manual and the Stack interface manual. When it is all connected, I have tried to use '*Mini Office*' but nothing happens. Can you advise me how to make the system operate?

R Carter
Kenton
Harrow

YOU DON'T say whether your system works with other software, or even whether the EP22 works directly. Try OPEN 4,4 CMD 4 LIST, followed by PRINT # 4 CLOSE 4. This will list a program in memory directly to the printer. If there is no



reaction to the above, then your equipment is faulty. If this routine does work but you still cannot get the system to work with the software, then either the software is not designed to work with non Commodore printers (check the manual) or the cassette is faulty.

Books in print

I HAVE recently purchased a second hand Vic 20 + 16K and would appreciate answers to a couple of questions. To switch to lower case within your program you POKE 36869,242 (instead of 240 for upper case). This if fine for a 3.5K memory but does not work for 16K. How can this be carried out with 16K?

I am also having trouble getting books I want regarding the Vic, as both my local big booksellers say they are unobtainable despite being on their distributors lists. Can you suggest a good place to order such books?

D R Mullins
Totton S
Southampton

YOU SHOULD have been able to guess this one — just POKE 36869,PEEK(36869)+2. If you have difficulty getting your local book shop to order books, then it's always possible to get in touch with the publishers directly. You can get addresses from the *Directory of Books In Print*, which is kept behind the counter at most good bookstores.

Letter perfect

I HAVE A 64, 1541 disk unit, Philips monochrome mod for and Shinwa CP80 printer for both word processing with Easyscript and database management with Superbase interface. All has been well up to now except that the Shinwa always prints a 1" skip over the perforation on continuous stationary regardless of the setting of the DIP switch within the printer. How can I transmit a control code to the printer to make it omit the 1" skip? I have been unable to get the 64 to print out hard copy with my own program listings. Do I need a special lead?

J Potter
Windsor
Berks

THE CONTROL code required to run off the skip is ESCAPE 0, which is sent by CHRS(27) CHRS(79). As you use a centronics interface with the Silver Reed then you already have a suitable lead. You can buy the necessary centronics interface software from Microport of 7 Clydesdale Close, Bursham Wood, Herts, 01-953 8385, the Printfluk 2 software costs around £8 and you should specify the type of printer you're using. The software does not use any Basic memory and is therefore compatible with any Basic program. You do not say which interface you use with the Shinwa CP80, if it is CBM IEEE compatible then you will also need a lead costing around £18 for this printer.

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TECHNICAL DATA

- **Spread sheet size** 64 X 254 X 32 pages
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Applied Calc Result describes a larger number of applications in the area of –

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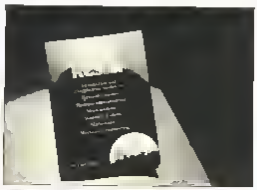
The user of Calc Result will find among the applications given many useful examples of how to get the most from Calc Result

An introduction to Calc Result is given at the beginning of the book for the benefit of those not acquainted with the system Its purpose is to give the reader a brief lesson on the use and construction of Calc Result



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What is a data base? The term data base is a product of the computer age but the idea of a data base is very old The broadest definition of a data base is a method of storing information so that it is easy to recall or look up at a later date

There are data bases in your home and office already The telephone directory is a good example of a data base example of a data base An address book a file box of recipes or the index of a book are all data bases

For anything that you want to categorise – from your book collection to serial numbers of valuable items to the names and addresses of your regular customers – Handic Data Base will make the job simpler

For those who want to use the package as it stands there are a mailing list and four different print programs included

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If you want to find out more about Data Base tick and send the coupon or telephone us on the number listed below

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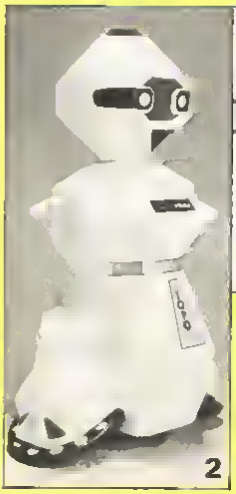

2

3

1

1) What popular TV series featured the robot shown in picture one?

2) Which award winning science fiction author invented the Three Laws or Robotics?

3) What alternative name is often applied to computer-controlled motor driven buggies?

HOW can you make your 64 control the outside world? You need THE BOX! THE BOX is a control device which needs no knowledge of electronics or programming to operate — used with your 64, THE BOX can control lighting heating, buggies, model railways coffee makers — anything electrical you can think of

So how's it done? THE BOX developed by Prototronics, has eight indicator lights two rows of four low voltage 3mm sockets a mains lead and an edge connector to the 64 Along the back are four IEC mains outlets which match plugs supplied with the BOX

To use a buggy with THE BOX, you just load the tape or disk based Buggy software, and enter a set of movement commands with a joystick and the function keys This set of movements can be repeated as often as you like, with the indicator lights on THE BOX showing you which buggy command lines are activated If you don t have a buggy — don't despair! THE BOX s manual includes instructions on constructing a cheap and entertaining device based on DC motors

Appliances

The ROBOT HOME software enables you to control up to eight electrical appliances or lights on a day to-day basis. The software allows you to program up to fifty on/off actions in any one day, spread over the eight output ports Up to seven different patterns (days) can be preprogrammed and stored for later use. You could, for instance, use THE BOX to make it appear that your unoccupied home was, in fact, full of life — lights could go on and off, record players start and stop any domestic appliance switch itself on, all in your absence. The security applications are obvious

Controls

Given the instructions in the manual, a good Basic programmer could even write his own software for THE BOX — you could control model railway layouts Scalextric, garden appliances alarms — whatever you like. The uses are only limited by your imagination

Protronics' next project, THE SENSOR, can be used alone or in conjunction with THE BOX to give your 64 full interaction with the outside world THE SENSOR can sense heat or light on a digital basis, with user programmable threshold levels. Sound is sampled by frequency, and may be programmed to respond on four levels THE SENSOR can be connected to THE BOX using a full interactive software package

For more details on THE BOX and THE SENSOR, contact Protronics at 10 Queen Street Weymouth, Dorset

For those of you who can t wait to get your hands on THE BOX, we have three to give away courtesy of Harboursoft Distribution

All you have to do to win one of these great prizes — each worth £69 95 — is to answer the three simple questions about robotics above and complete the tie-breaker

When you've answered the questions, complete this tie-breaker sentence in an apt, original and amusing manner in fifteen words or fewer, ' The Box gives you all the right connections because '

Put your entry with your name and address on a POSTCARD or the back of a sealed envelope, and sent it to *THE BOX Competition Commodore Horizons, 12/13 Little Newport Street London WC2H 7PP*, to arrive by the last working day of August Winners will be announced in the October issue All normal competition rules apply ■

Previous winners:

The fifty winners of the Shadowfire contest in the July issue have now been selected Each wins a special Shadowfire team T shirt from Beyond which will be winging its way to the winners soon

Ten lucky prize winners get Airwolf games, watches and posters courtesy of Elite Software, as a result of our July contest. They are; Don Murray, London, RJ Philipot, Aylesbury, T Mills, London, M Buchanan, London, R Bononi, Glasgow, S McCarthy, Newark, A Davies, Bexley K Grainger, Darlington, C Garbutt, Basildon, and R Haines, Colchester

Ten runner up get the game and the poster J Bell, London, A S Boocock, Leeds, M LeVallois, Paisley S Cox, Erith TPW Weld BFPO 16, I Payne, Belfast, T Robson, Stanmore D Cartwright, Plumley, T Colley, Brixham, R Armstrong, Bradford.

Fun and games Summer 85

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Available for Amstrad and MSX in early autumn

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I smell the blood of an Englishman

HA - HA - HA - HA - HA!

Will Jack be warned by the mocking sinister speech of the giant or will he continue his quest to retrieve the family fortune with nothing but his agility of mind and body to help him.

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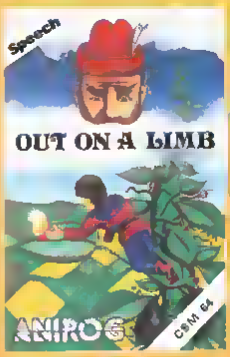

The stunning speech effects in the above programs were generated by ANIROG COVOX VOICE MASTER

Contact Anirog for further information

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COMMODORE 64

MICRODEAL